HMK-419

494

E Model

STEREO MUSIC SYSTEM

SPECIFICATIONS

GENERAL

Power Requirements:	110, 120, 220, 240 V ac adjustable, 50/60 Hz
Power Consumption:	100 W
Dimensions:	Approx. 572 (w) x 243 (h) x 436 (d) mm 22⅝ (w) x 9⅝ (h) x 17¼ (d) inches Including projecting parts and controls
Weight:	Approx. 12.6 kg, 27 lb 13 oz (net) Approx. 15.4 kg, 34 lb (with shipping carton) without speakers

FM SECTION

Tuning Range:	87.5–108 MHz
Antenna:	300 Ω balanced terminals
Sensitivity:	2.2 μV, S/N = 30 dB
S/N Ratio:	65 dB
Stereo Separation:	Better than 40 dB
Harmonic Distortion: (at 400 Hz)	Mono 0.5 % Stereo 1.0 %

AM SECTION

Tuning Range:	MW: 530–1,605 kHz (566–187 m) SW1: 2.3–6.2 MHz (130–48.4 m) SW2: 7.0–17.9 MHz (42.9–16.7 m)
Antennas:	MW: Built-in ferrite-rod antenna external antenna terminal SW1,SW2: External antenna terminal
Sensitivity:	MW: 250 μV/m (48 dB/m), S/N = 20 dB, built-in ferrite-rod antenna SW1: 30 μV, S/N = 20 dB, external antenna SW2: 30 μV, S/N = 20 dB, external antenna
S/N Ratio:	MW/SW1/SW2: 55 dB

— continued on page 2 —

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®

SERVICE MANUAL

494

AUDIO AMPLIFIER SECTION

Continuous RMS Power Output: (rated output) (EIA, less than 5 % harmonic distortion) 15 + 15 W (8 Ω)

Music Power: 50 W (8 Ω)

Harmonic Distortion: Less than 1 % at continuous RMS power

Input Sensitivity and Impedance: MIC: 1.5 mV (–54 dB), 10 kΩ
Accepts low-impedance microphone

Output Level and Impedance:
REC OUT: 440mV (–5 dB), 10kΩ
HEADPHONES: Accepts 8 Ω and high impedance headphones
SPEAKER: Accepts 8 Ω speakers

Tone Controls:
BASS ±10 dB at 100 Hz
TREBLE ±10 dB at 10 kHz

Loudness Controls: +8 dB at 100 Hz, +4 dB at 10 kHz (Attenuation: 30 dB)

RECORD PLAYER SECTION

TURNTABLE (BSR C-129R2 auto/manual changer)

Platter: 28 cm (11 inches)

Speeds: 33⅓, 45, 78 rpm

Cartridge: VX-23P (ceramic type)

Tracking Force: 4 g ± 0.5 g (4 g recommended)

Stylus: ND-127P conical 0.7 mil diamond

CASSETTE RECORDER SECTION

Recording System: 4-track 2-channel stereo/monaural

Wow and Flutter: 0.3 % wrms

SPEAKER SYSTEM SS-410

Speaker System: Two-way
Woofer 16 cm (6½ inches), cone type
Tweeter 5 cm (2 inches), cone type

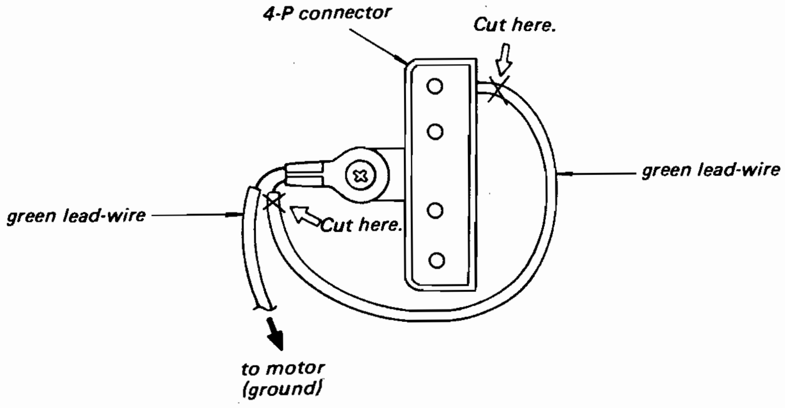
Impedance: 8 Ω

Dimensions: Approx.
280 (w) x 500 (h) x 160 (d) mm
11⅛ (w) x 19¾ (h) x 6⅜ (d) inches

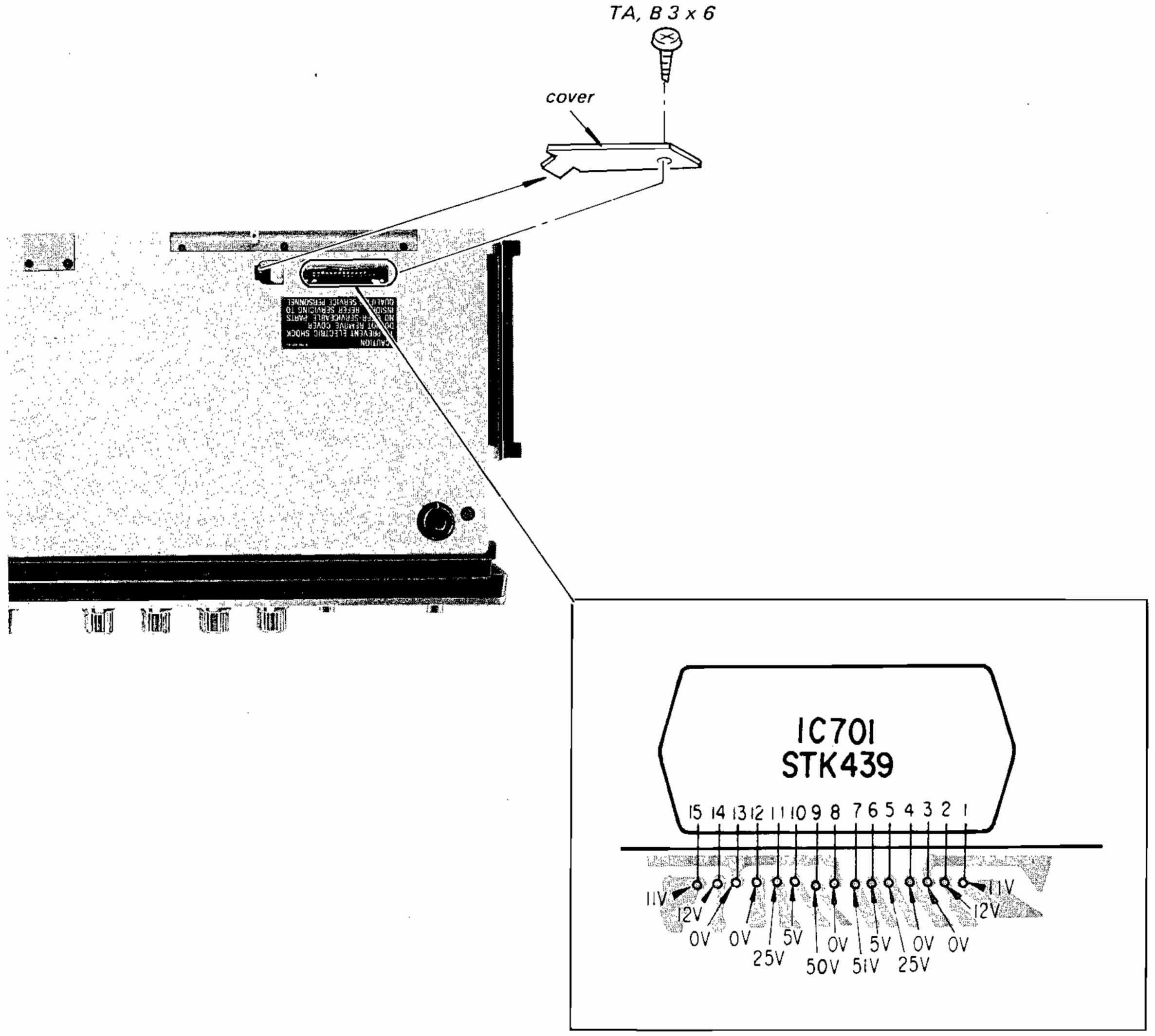
Weight: Approx.
5 kg, 11 lb 1 oz, per speaker (net)
11 kg, 24 lb 4 oz, pair (with shipping carton)

CAUTION

When replacing the turntable unit (BSR C-129R2), cut the green lead-wire on 4-p connector of the turntable unit as shown below.

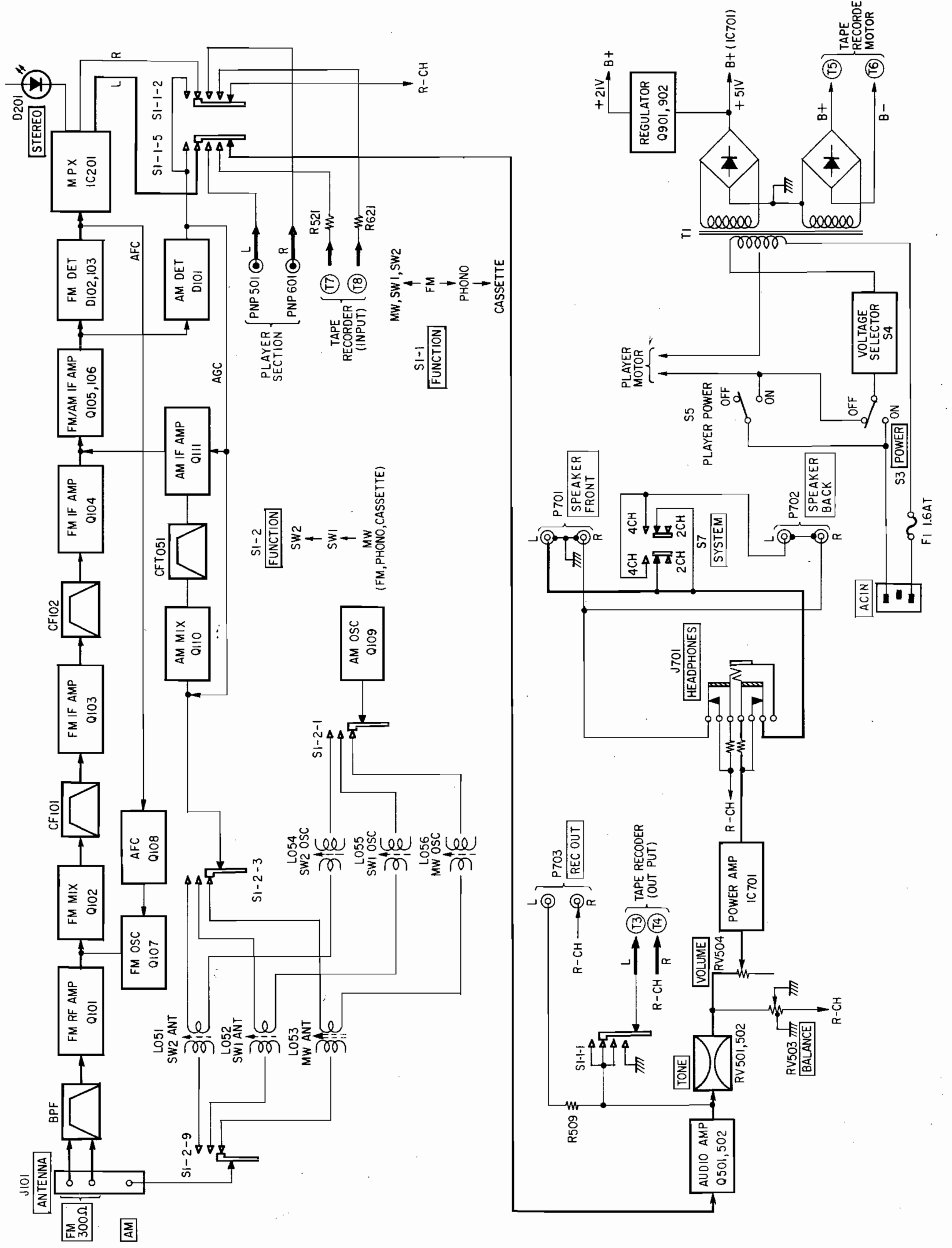


Power IC IC701
Lead Voltage Checking


TA, B 3 x 6
cover
IC701
STK439
15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
11V
12V
0V
0V
25V
5V
50V
0V
51V
5V
25V
0V
0V
12V
11V

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

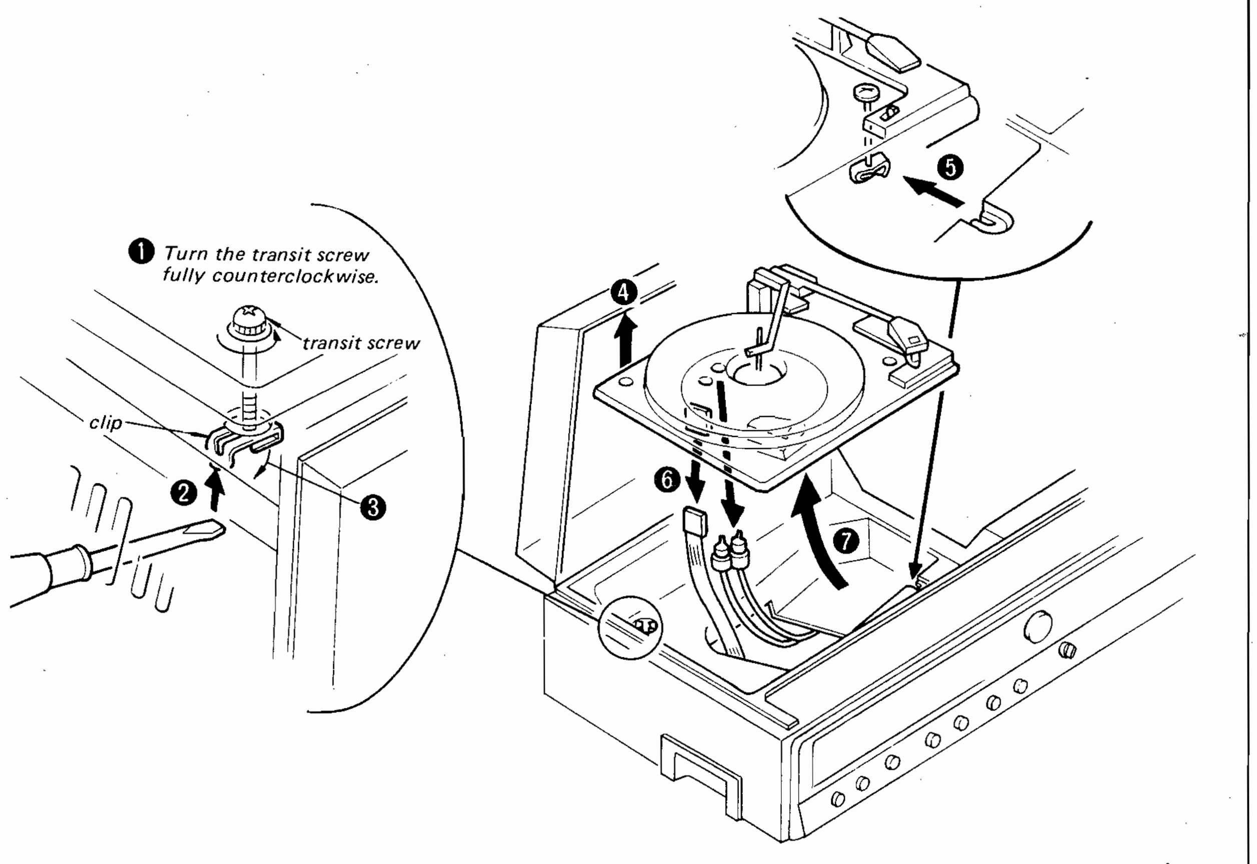

J101 ANTENNA
FM 300Ω
AM
BPF
FM RF AMP Q101
FM MIX Q102
FM OSC Q107
AFC Q108
CF101
FM IF AMP Q103
CF102
FM IF AMP Q104
FM/AM IF AMP Q105, 106
FM DET D102, 103
MPX IC201
D201 STEREO
AFC
AGC
AM MIX Q110
CFT051
AM IF AMP Q111
AM DET D101
AM OSC Q109
L051 SW2 ANT
L052 SW1 ANT
L053 MW ANT
L054 SW2 OSC
L055 SW1 OSC
L056 MW OSC
S1-2-9
S1-2-3
S1-2-1
S1-2 FUNCTION
SW2
SW1
MW (FM, PHONO, CASSETTE)
S1-1-5
S1-1-2
L
R
R-CH
PNP 501
PNP 601
PLAYER SECTION
T7
T8
TAPE RECORDER (INPUT)
R521
R621
MW, SW1, SW2
FM
PHONO
CASSETTE
S1-1 FUNCTION
AUDIO AMP Q501, 502
TONE
RV501, 502
R509
S1-1-1
T3
T4
TAPE RECODER (OUT PUT)
P703 REC OUT
VOLUME RV504
RV503 BALANCE
POWER AMP IC701
J701 HEADPHONES
P701 SPEAKER FRONT
P702 SPEAKER BACK
S7 SYSTEM
4CH
2CH
+21V
B+
REGULATOR Q901, 902
B+ (IC701)
+51V
T5
T6
TAPE RECORDER MOTOR
B-
T1
PLAYER MOTOR
S5 PLAYER POWER
OFF
ON
VOLTAGE SELECTOR S4
S3 POWER
F1 1.6AT
AC IN

SECTION 2

DISASSEMBLY

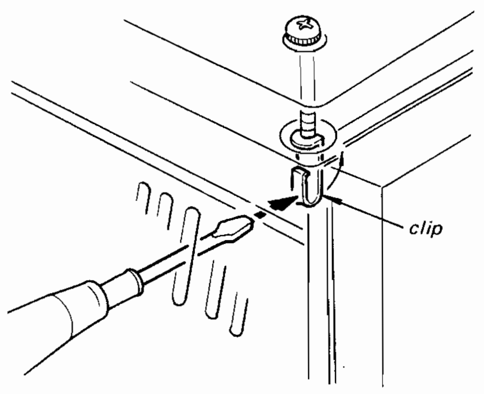
2-1. REMOVAL

Record Changer Removal

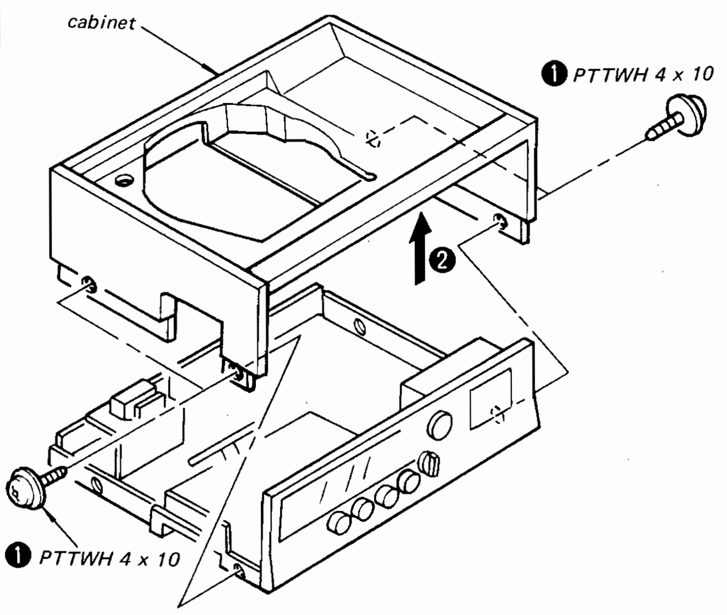

① Turn the transit screw fully counterclockwise.

transit screw
clip
②
③
④
⑤
⑥
⑦

Refastening the transit screw.



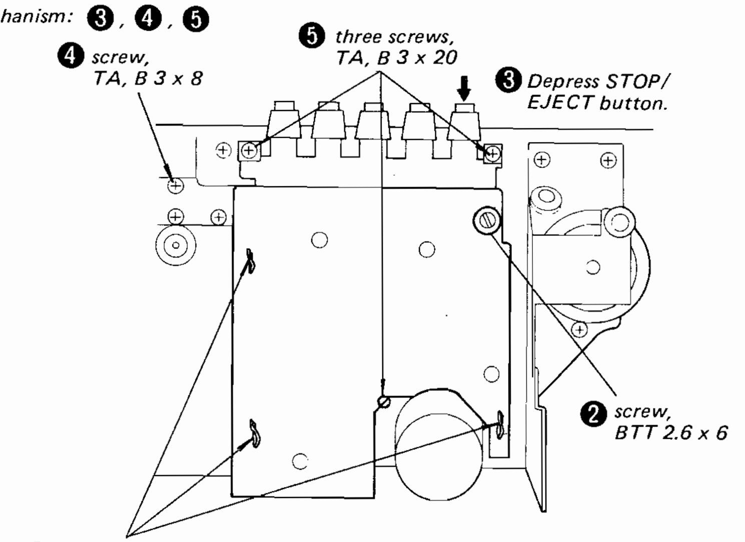
Cabinet Removal


cabinet
① PTTWH 4 x 10
②
① PTTWH 4 x 10

Cassette Deck Removal

Record/Playback Board: ①, ②

Tape Recorder Deck Mechanism: ③, ④, ⑤


④ screw, TA, B 3 x 8

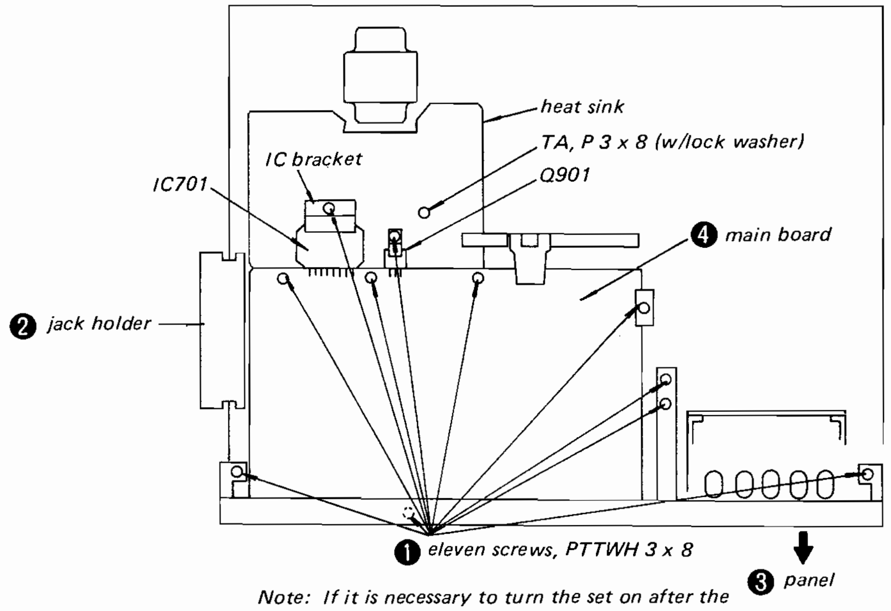
⑤ three screws, TA, B 3 x 20

③ Depress STOP/EJECT button.

② screw, BTT 2.6 x 6

① Straighten three chassis tabs.

Main Board Removal

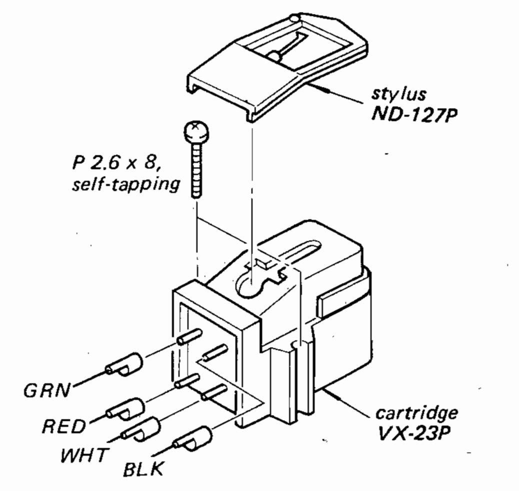

heat sink
TA, P 3 x 8 (w/lock washer)
Q901
IC bracket
IC701
④ main board
② jack holder
③ panel

① eleven screws, PTTWH 3 x 8

Note: If it is necessary to turn the set on after the main board removal, remove the heat sink from the chassis and remount IC701 and Q901 on the heat sink.

Dial Cord Stringing

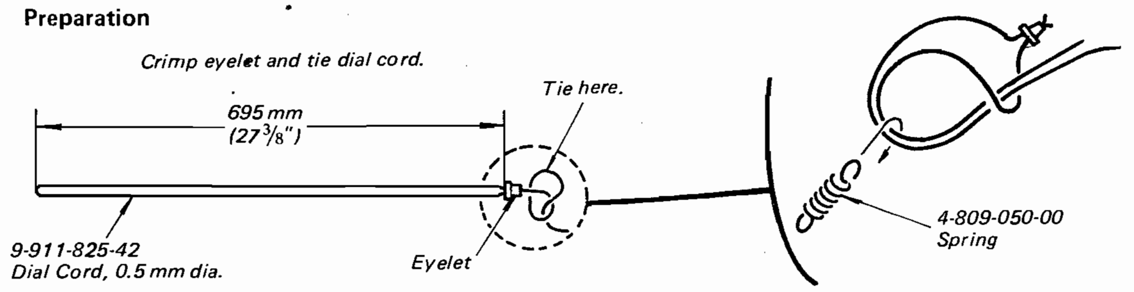
Cartridge Removal


stylus
ND-127P
P 2.6 x 8,
self-tapping
GRN
RED
WHT
BLK
cartridge
VX-23P

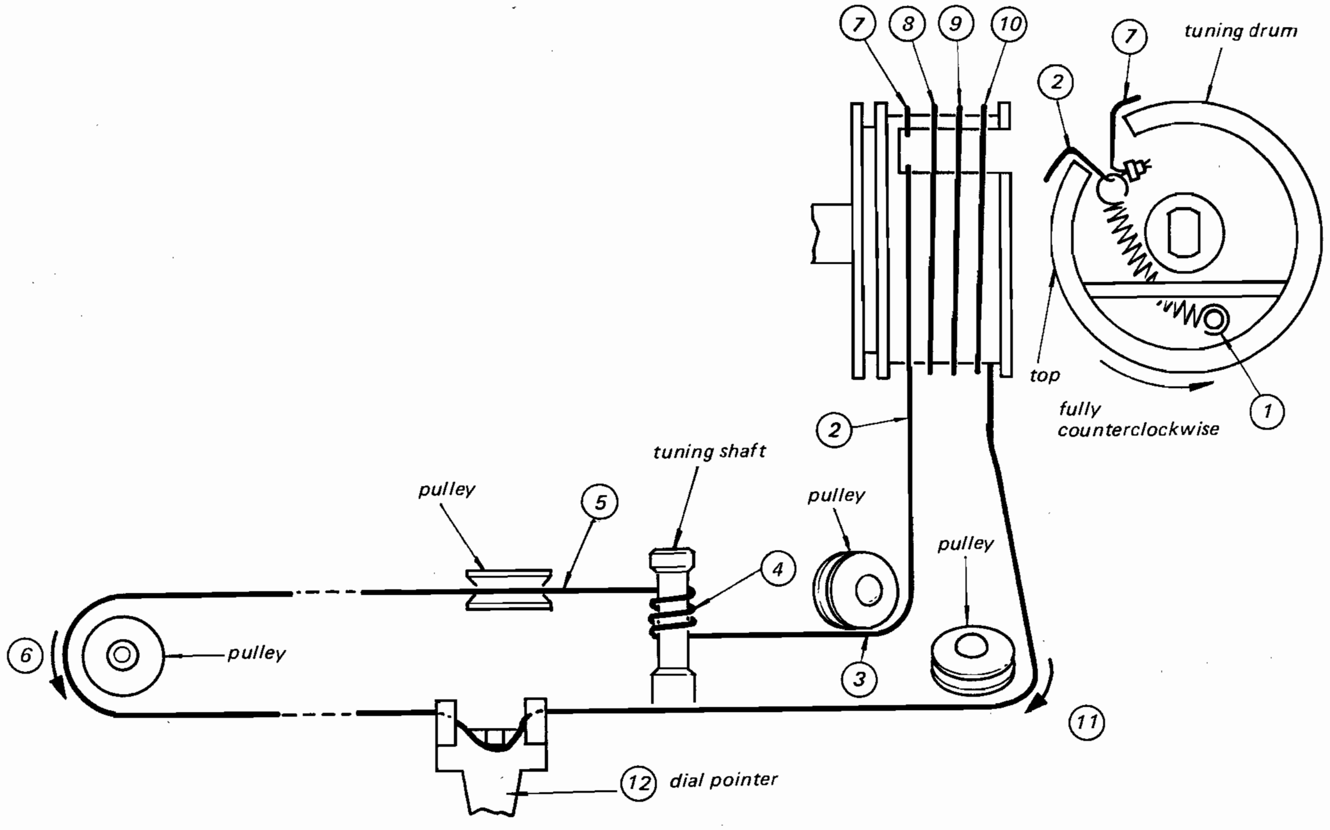
2-2. DIAL CORD STRINGING

1) Preparation

Crimp eyelet and tie dial cord.

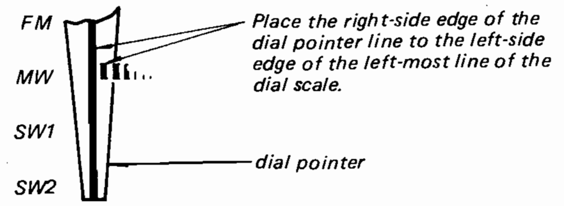

Tie here.
695 mm
(27 3/8")
9-911-825-42
Dial Cord, 0.5 mm dia.
Eyelet
4-809-050-00
Spring

2) Stringing


7
8
9
10
7
tuning drum
2
top
fully counterclockwise
1
2
tuning shaft
pulley
5
pulley
pulley
4
6
pulley
3
11
12
dial pointer

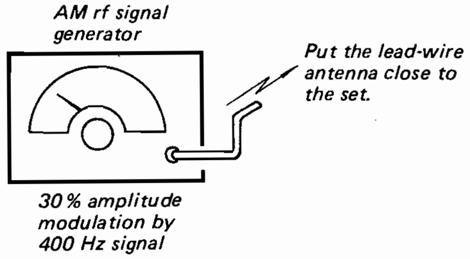
3) Dial Pointer Setting

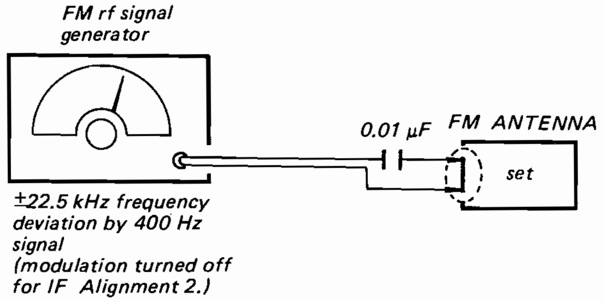
- Turn the tuning shaft fully counterclockwise.

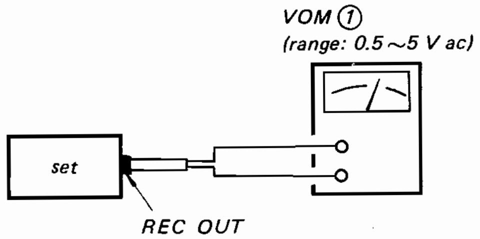

FM
MW
SW1
SW2
dial pointer

Place the right-side edge of the dial pointer line to the left-side edge of the left-most line of the dial scale.

SECTION 3
ADJUSTMENTS

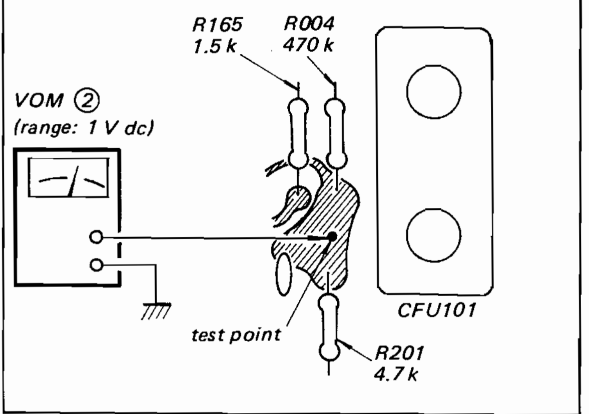

AM rf signal generator
Put the lead-wire antenna close to the set.
30 % amplitude modulation by 400 Hz signal


FM rf signal generator
0.01 μF
FM ANTENNA
set
±22.5 kHz frequency deviation by 400 Hz signal
(modulation turned off for IF Alignment 2.)


VOM ①
(range: 0.5∼5 V ac)
set
REC OUT

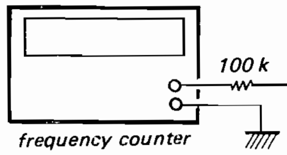
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

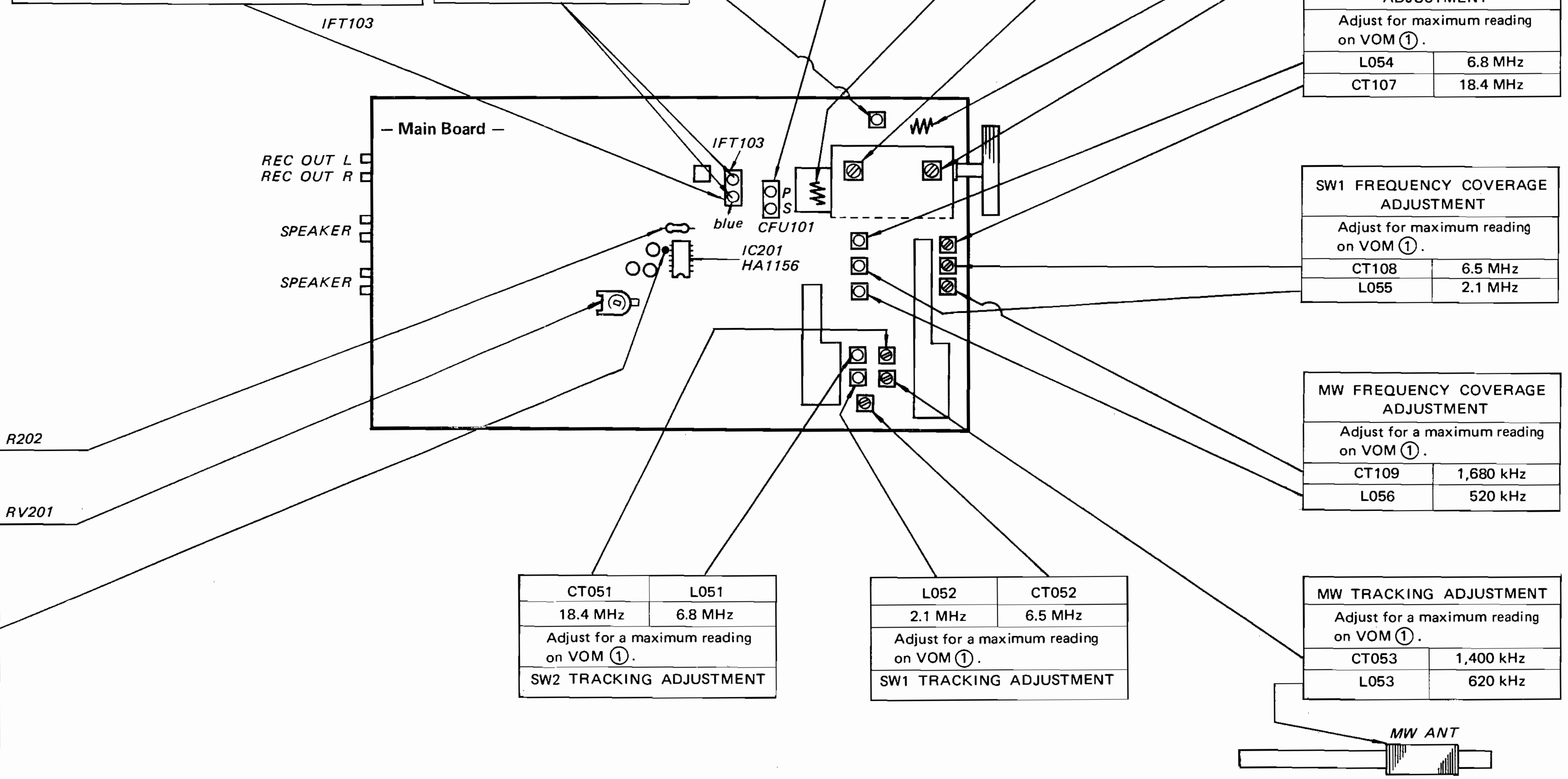
FM IF ALIGNMENT 2 (10.7 MHz with no modulation)
Adjust for 0 V dc reading on VOM ②.
IFT103 (blue core)


VOM ②
(range: 1 V dc)
R165
1.5 k
R004
470 k
test point
CFU101
R201
4.7 k

19 kHz Adjustment

1. Set FUNCTION switch to FM.
2. Short the two leads of R202 (6.8 kΩ).
3. Adjust RV201 for 19 kHz ±100 Hz on the counter.


100 k
frequency counter


IFT103
— Main Board —
REC OUT L
REC OUT R
SPEAKER
SPEAKER
IFT103
blue
P
S
CFU101
IC201
HA1156
R202
RV201
TP
MW ANT

FM IF ALIGNMENT 1 (10.7 MHz with modulation)
Adjust for maximum reading on VOM ①.
IFT101
IFT103

AM IF ALIGNMENT	
Adjust for maximum reading on VOM ①.	
455 kHz	CFU101

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
87.1 MHz	108.5 MHz
L001	CT001

FM TRACKING ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
87.1 MHz	108.5 MHz
L101	CT101

SW2 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
L054	6.8 MHz
CT107	18.4 MHz

SW1 FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
CT108	6.5 MHz
L055	2.1 MHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
CT109	1,680 kHz
L056	520 kHz

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
CT053	1,400 kHz
L053	620 kHz

CT051	L051
18.4 MHz	6.8 MHz
Adjust for a maximum reading on VOM ①.	
SW2 TRACKING ADJUSTMENT	

L052	CT052
2.1 MHz	6.5 MHz
Adjust for a maximum reading on VOM ①.	
SW1 TRACKING ADJUSTMENT	

SECTION 4

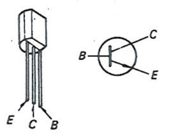
DIAGRAMS

4-1. MOUNTING DIAGRAM – Main Board –

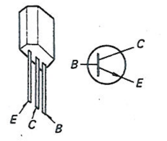
– Conductor Side –

Replacement Semiconductors For replacement, use semiconductors except in ( ).

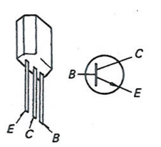
Q101 ~109: 2SC710



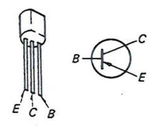
Q110, 111: 2SC403C



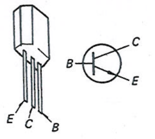
Q501, 601: 2SC632A



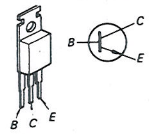
(2SC1631)



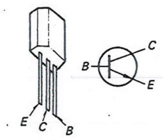
Q502, 602: 2SC632A (2SC631A)



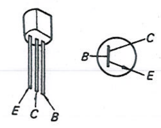
Q901: 2SC1061



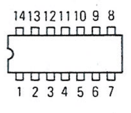
Q902: 2SC926A



(2SC1890)

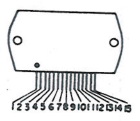


IC201: HA1156

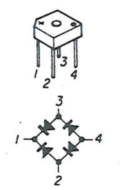

14 13 12 11 10 9 8
1 2 3 4 5 6 7

(Top view)

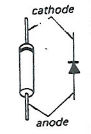
IC701: STK439


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

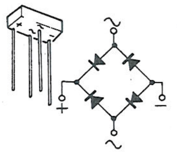
D901: S2VB20



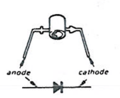
D101 ~103, D105 ~107: 1S1555
D104 : 1T22A


cathode
anode

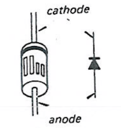
D902: S1RB10



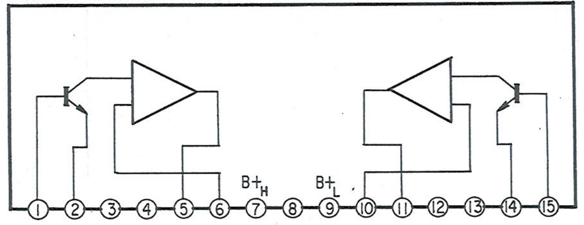
D201: SEL103R


anode
cathode

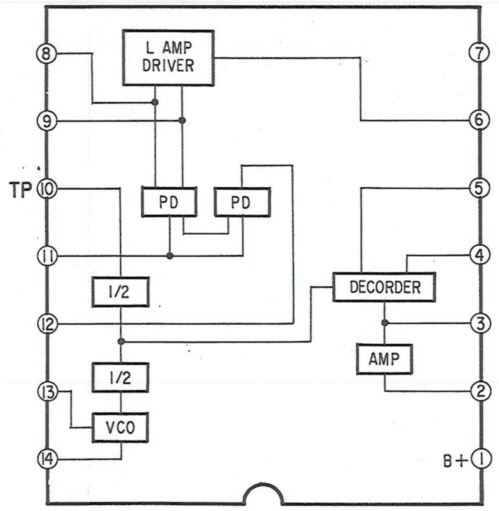
D903: EQB01-22 (EAQ01-22R)


cathode
anode

IC701 STK439

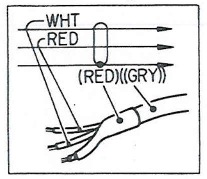

B+H
B+L
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

IC201 HA1156


L AMP DRIVER
PD
PD
1/2
1/2
VCO
DECORDER
AMP
TP
B+
8 9 10 11 12 13 14
7 6 5 4 3 2 1

Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

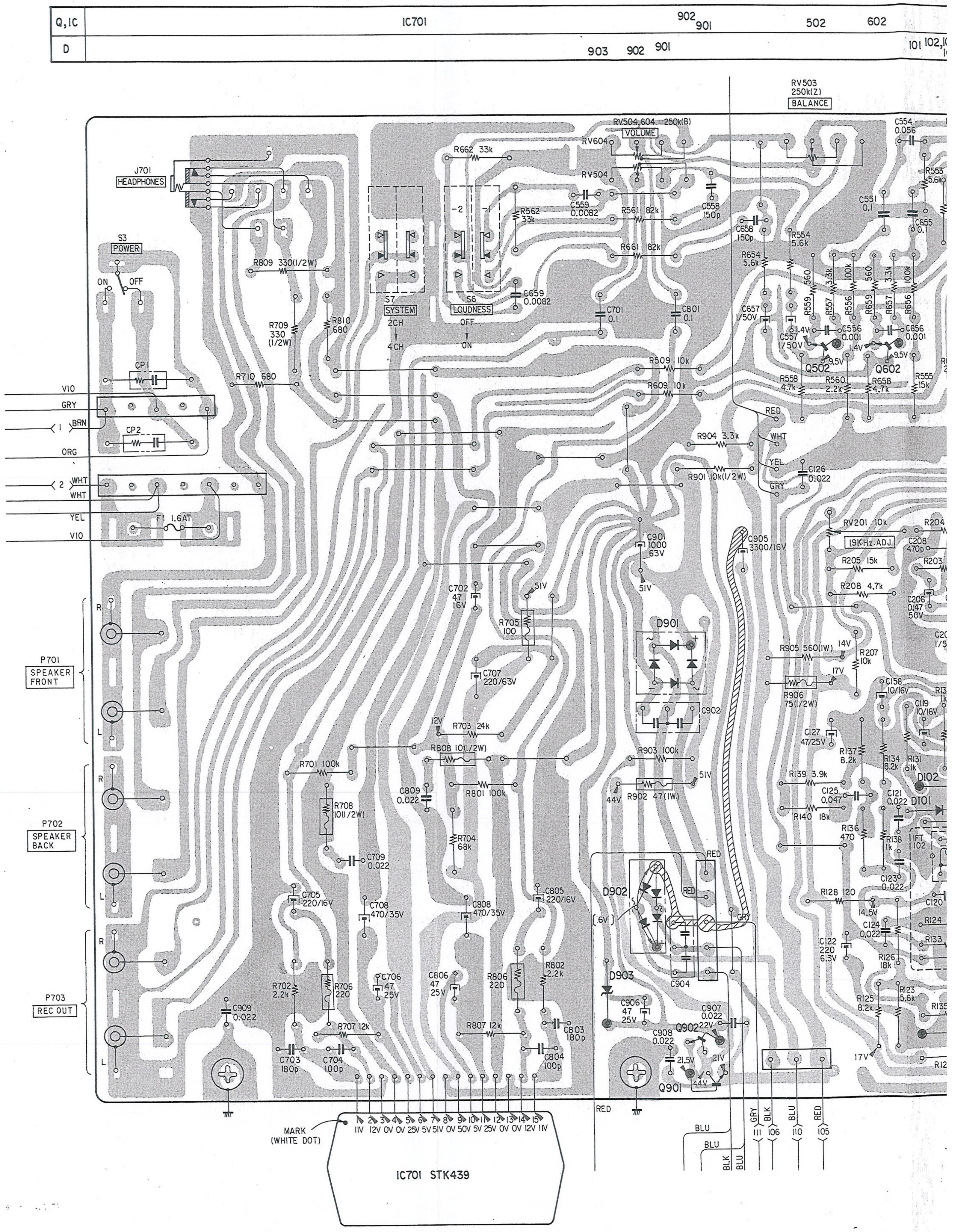
- ▨ : B+ pattern
- ▨ : B– pattern

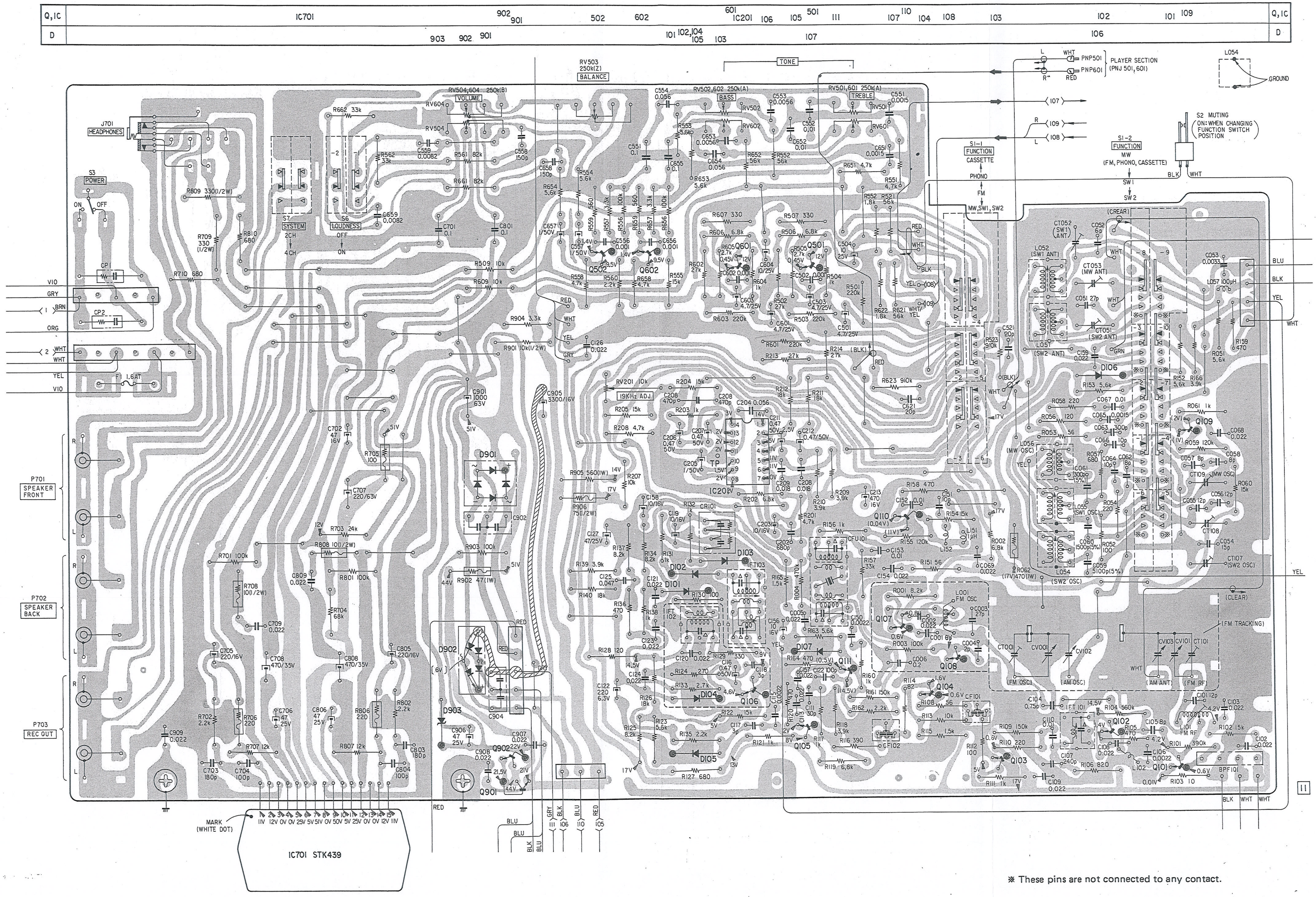
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).

  ( ) : AM

  [ ] : FORWARD

- Voltages in [ ] are dc with respect to B– bus.


Q,IC
D
IC701
902 901
502
602
903 902 901
101 102
RV503 250k(Z) BALANCE
RV504,604 250k(B) VOLUME
J701 HEADPHONES
S3 POWER
ON OFF
R662 33k
R562 33k
C559 0.0082
R561 82k
R661 82k
C558 150p
C658 150p
C551 0.1
C655 0.1
C554 0.056
R553 5.6k
R554 5.6k
R654 5.6k
S7 SYSTEM 2CH 4CH
S6 LOUDNESS OFF ON
C659 0.0082
C701 0.1
C801 0.1
R809 330(1/2W)
R709 330 (1/2W)
R810 680
R710 680
R509 10k
R609 10k
Q502
Q602
R558 4.7k
R560 2.2k
R658 4.7k
R555 15k
CP1
CP2
VIO
GRY
BRN
ORG
WHT
YEL
F1 1.6AT
R904 3.3k
R901 10k(1/2W)
RED
C126 0.022
C901 1000 63V
C905 3300/16V
RV201 10k
19KHz ADJ.
R205 15k
R208 4.7k
C702 47 16V
R705 100
51V
D901
R905 560(1W)
R906 75(1/2W)
R207 10k
C158 10/16V
C119 10/16V
C707 220/63V
C902
P701 SPEAKER FRONT
P702 SPEAKER BACK
P703 REC OUT
R
L
R703 24k
R808 10(1/2W)
R701 100k
R801 100k
R903 100k
R902 47(1W)
44V
C809 0.022
R708 10(1/2W)
R704 68k
C709 0.022
C127 47/25V
R137 8.2k
R139 3.9k
R140 18k
C125 0.047
R136 470
D102
D101
C705 220/16V
C706 470/35V
C808 470/35V
C805 220/16V
D902
(6V)
C904
D903
C906 47 25V
C907 0.022
C908 0.022
Q902
Q901
R702 2.2k
R706 220
C706 47 25V
C606 47 25V
R806 220
R802 2.2k
R707 12k
R807 12k
C803 180p
C804 100p
C909 0.022
C703 180p
C704 100p
R128 120
C122 220 6.3V
R126 18k
R125 8.2k
MARK (WHITE DOT)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
11V 12V 0V 0V 25V 5V 51V 0V 50V 5V 25V 0V 0V 12V 11V
IC701 STK439
BLU
BLK
GRY
111 106 110 105


Q, IC
D
IC701
J701 HEADPHONES
S3 POWER
S7 SYSTEM
S6 LOUDNESS
RV504,604 250k(B) VOLUME
RV503 250k(Z) BALANCE
TONE
RV502,602 250k(A) BASS
RV501,601 250k(A) TREBLE
PNP501
PNP601
PLAYER SECTION (PNJ 501, 601)
L054
GROUND
S2 MUTING ON: WHEN CHANGING FUNCTION SWITCH POSITION
S1-1 FUNCTION
CASSETTE
PHONO
FM
MW, SW1, SW2
S1-2 FUNCTION
MW (FM, PHONO, CASSETTE)
SW1
SW2
P701 SPEAKER FRONT
P702 SPEAKER BACK
P703 REC OUT
F1 1.6AT
D901
D902
D903
Q901
Q902
IC201
19KHz ADJ
FM TRACKING
MARK (WHITE DOT)
IC701 STK439
11V 12V 0V 0V 25V 5V 5IV 0V 50V 5V 25V 0V 0V 12V 11V

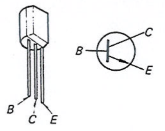
※ These pins are not connected to any contact.

4-2. MOUNTING DIAGRAM

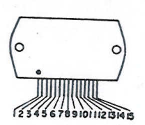
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

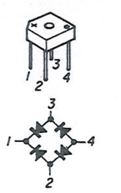
Q101 ~109: 2SC710



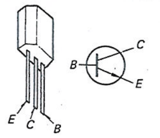
IC701: STK439


123456789101112131415

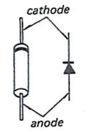
D901: S2VB20



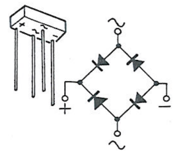
Q110, 111: 2SC403C



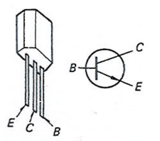
D101 ~103
D105 ~107 : 1S1555
D104 : 1T22A

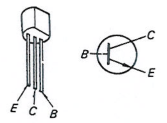

cathode
anode

D902: S1RB10

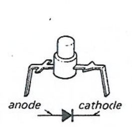


Q501, 601: 2SC632A (2SC1631)

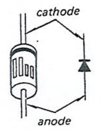




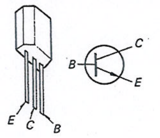
D201: SEL103R


anode
cathode

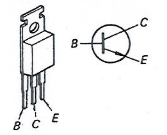
D903: EQB01-22 (EAQ01-22R)


cathode
anode

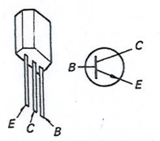
Q502, 602: 2SC632A (2SC631A)

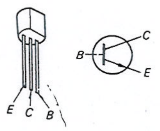


Q901: 2SC1061

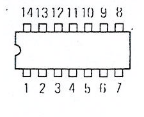


Q902: 2SC926A (2SC1890)



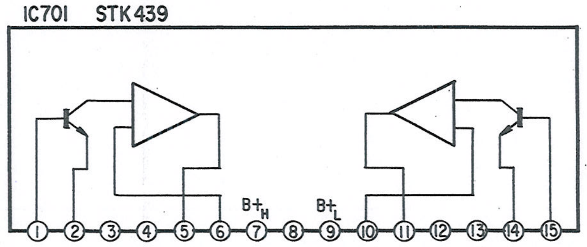


IC201: HA1156

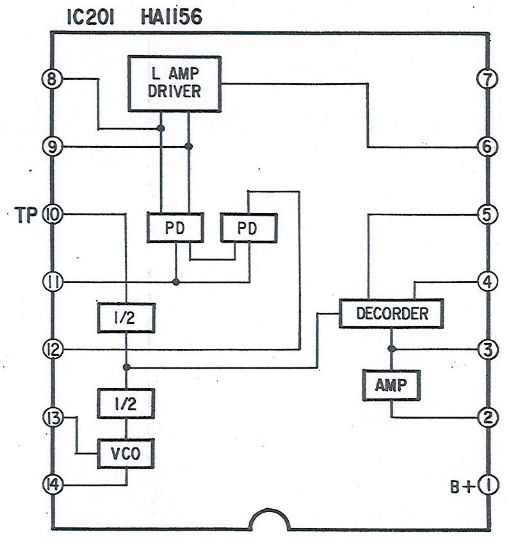

14 13 12 11 10 9 8
1 2 3 4 5 6 7

(Top view)

IC701 STK439

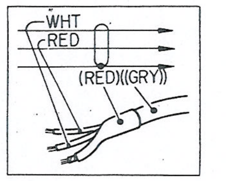

B+H
B+L
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

IC201 HA1156


L AMP DRIVER
PD
PD
DECORDER
AMP
1/2
1/2
VCO
TP
B+
1
2
3
4
5
6
7
8
9
10
11
12
13
14

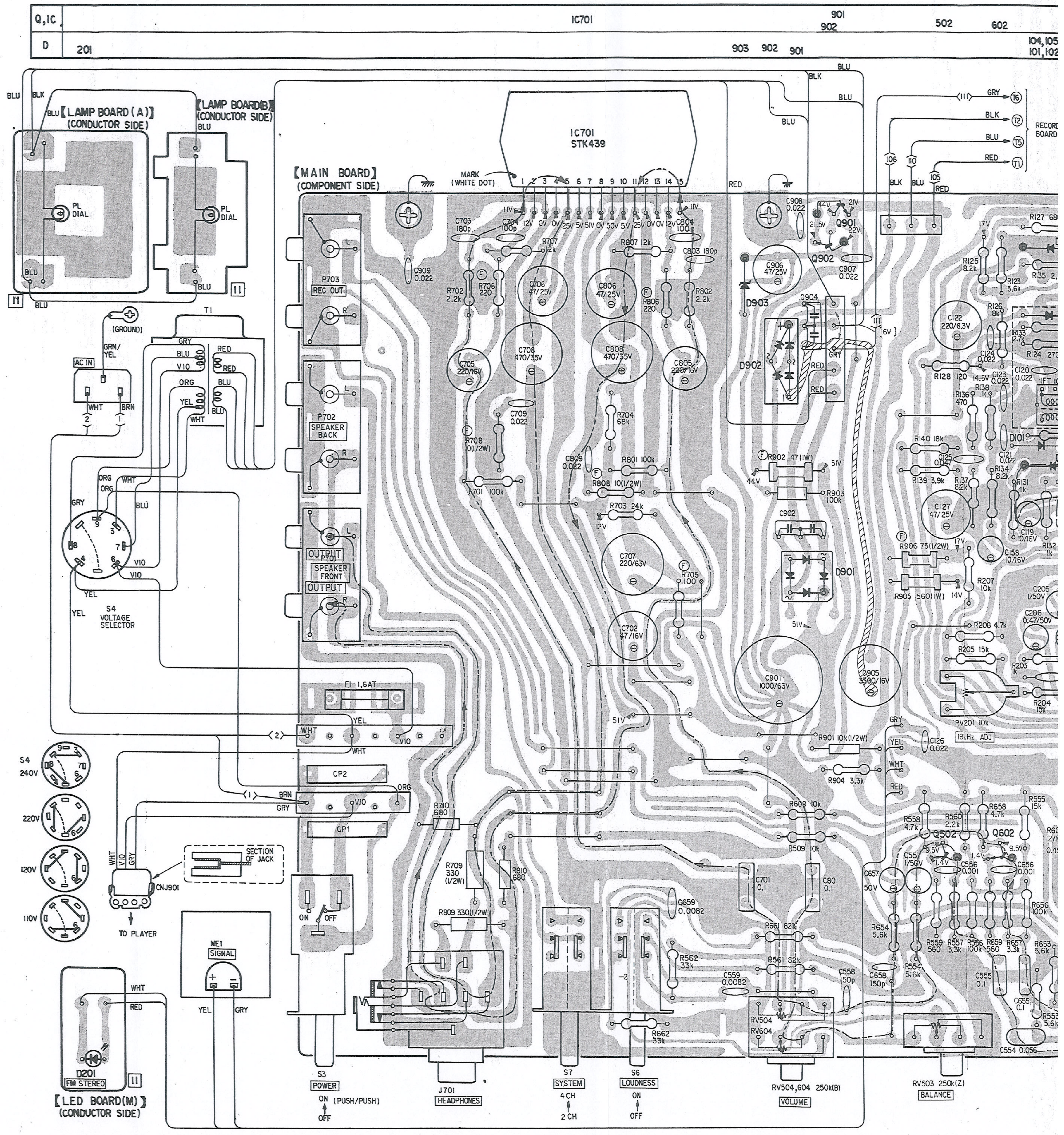
Note:

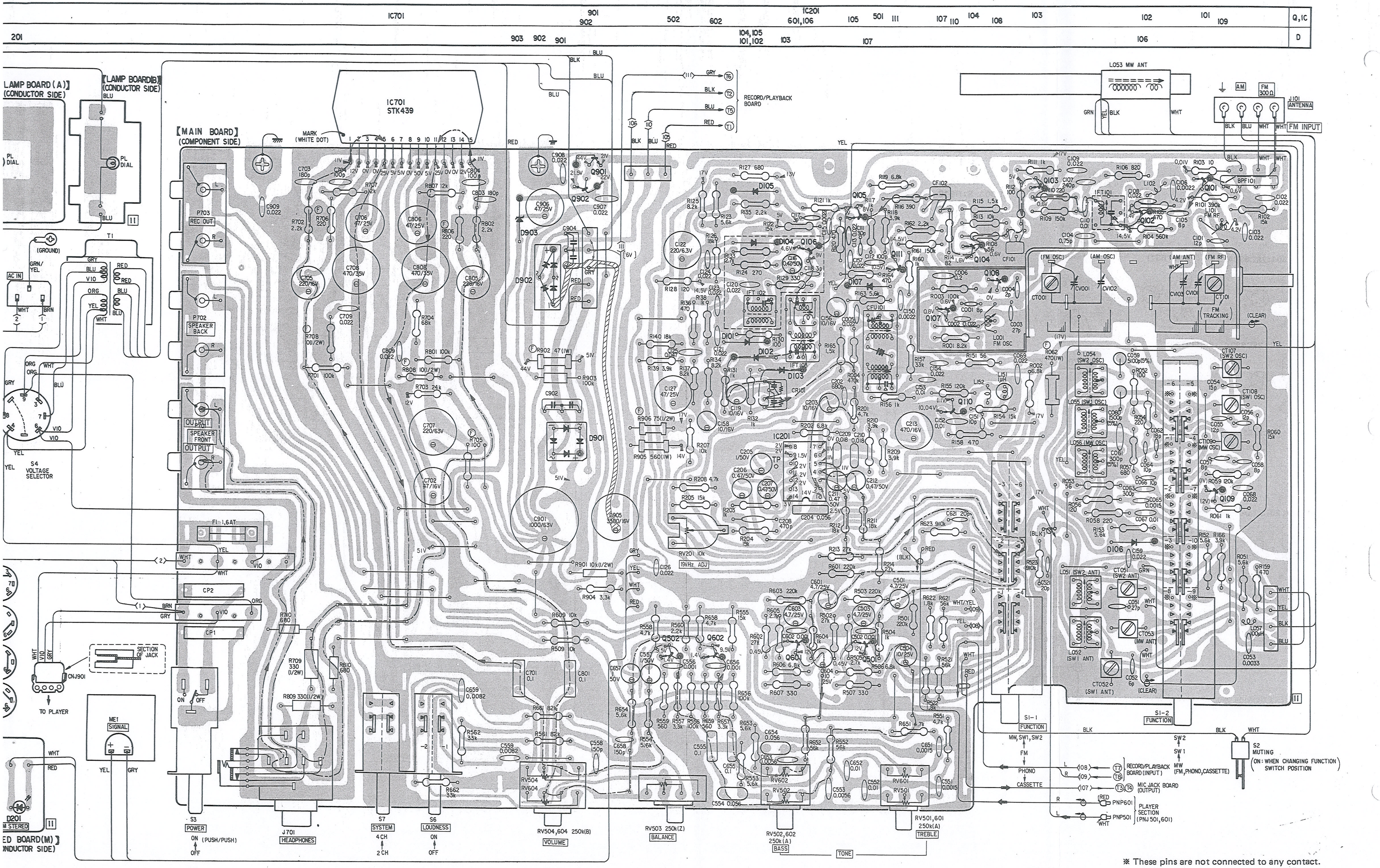
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ▒ : B+ pattern
- ▨ : B– pattern
- ➝ : signal path { ➝ : L-CH, ➝ : R-CH
- Ⓕ : fisible resistor.
- L054 ─ GROUND

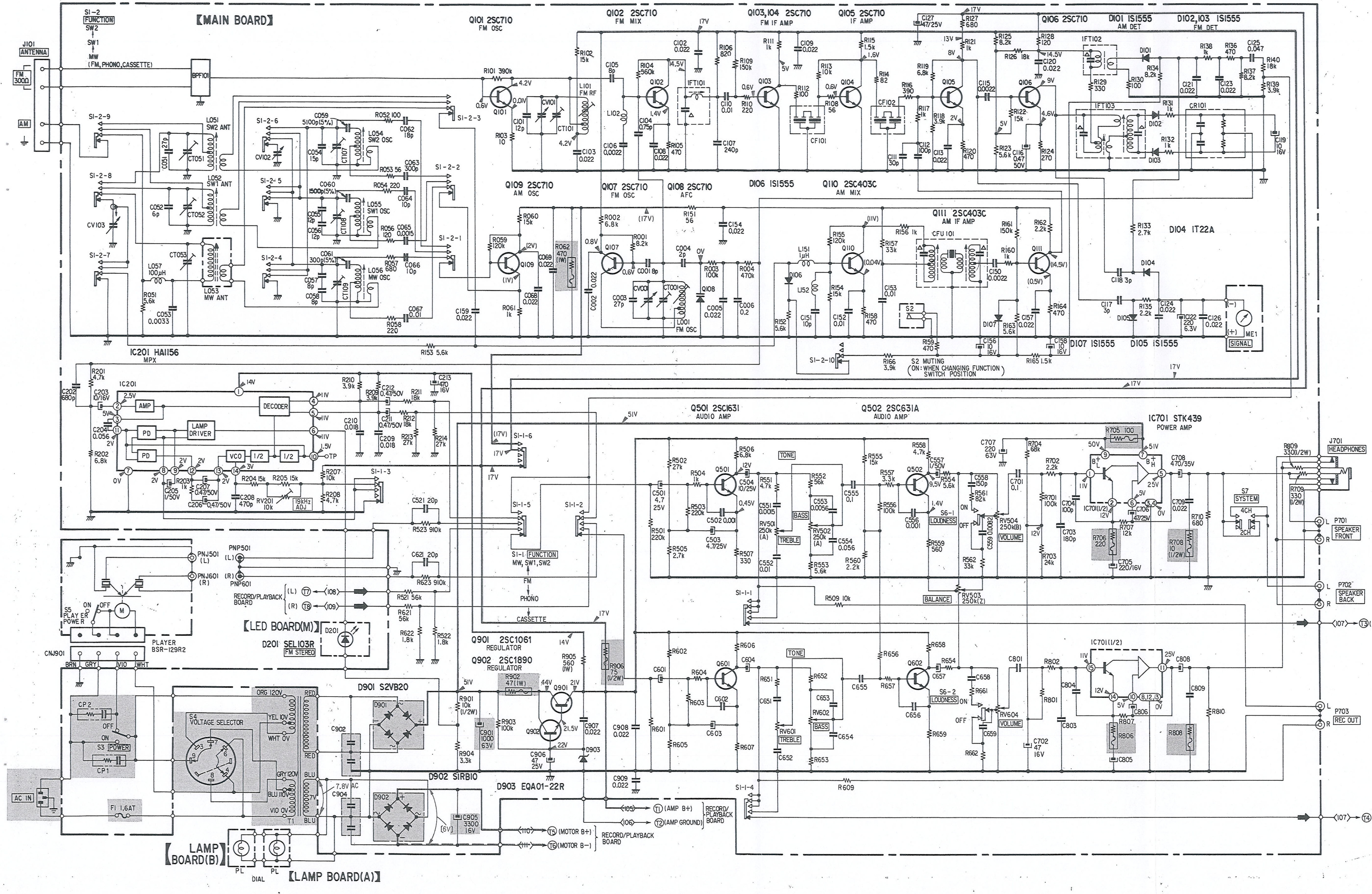
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  ( ): AM
  [ ]: FORWARD
- Voltages in [ ] are dc with respect to B– bus.


Q,IC
D
IC701
201
901
902
903
502
602
[LAMP BOARD (A)] (CONDUCTOR SIDE)
[LAMP BOARD(B)] (CONDUCTOR SIDE)
PL DIAL
[MAIN BOARD] (COMPONENT SIDE)
IC701 STK439
MARK (WHITE DOT)
P703 REC OUT
P702 SPEAKER BACK
OUTPUT SPEAKER FRONT OUTPUT
T1
(GROUND)
AC IN
S4 VOLTAGE SELECTOR
S4 240V
220V
120V
110V
F1 1.6AT
CP1
CP2
CNJ901
TO PLAYER
SECTION OF JACK
ME1 SIGNAL
D201 FM STEREO
[LED BOARD(M)] (CONDUCTOR SIDE)
S3 POWER ON (PUSH/PUSH) OFF
J701 HEADPHONES
S7 SYSTEM 4CH 2CH
S6 LOUDNESS ON OFF
RV504,604 250k(B) VOLUME
RV503 250k(Z) BALANCE
RV201 10k 19kHz ADJ
Q901
Q902
D901
D902
D903
Q502
Q602
C901 1000/63V
C905 3300/16V
RECORD BOARD

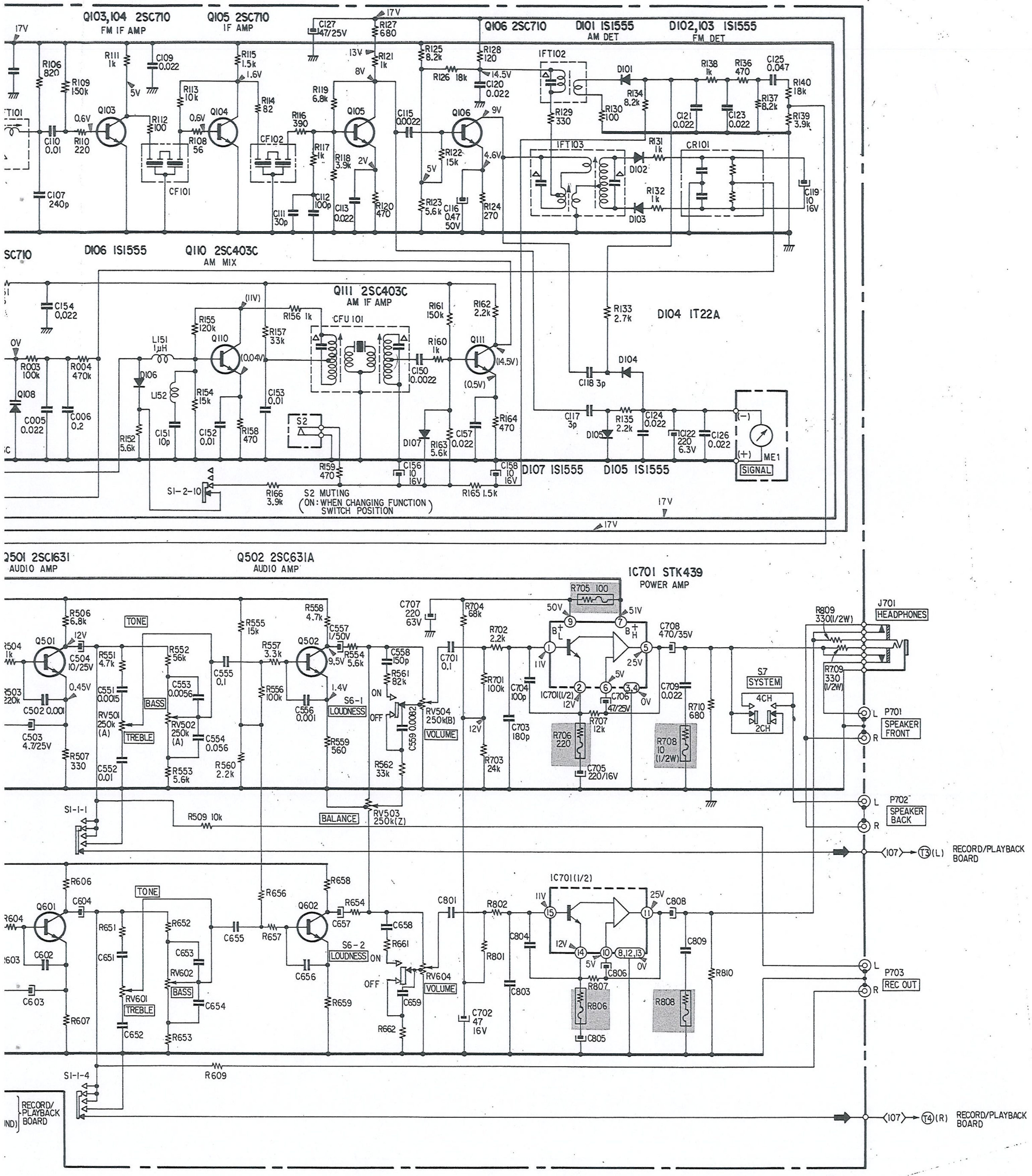

Q,IC
D
IC701
IC201
LAMP BOARD (A) (CONDUCTOR SIDE)
LAMP BOARD (B) (CONDUCTOR SIDE)
PL DIAL
AC IN
T1
S4 VOLTAGE SELECTOR
CNJ901
TO PLAYER
ME1 SIGNAL
D201 STEREO
ED BOARD(M) ONDUCTOR SIDE)
MAIN BOARD (COMPONENT SIDE)
IC701 STK439
MARK (WHITE DOT)
P703 REC OUT
P702 SPEAKER BACK
P701 SPEAKER FRONT OUTPUT
F1 1.6AT
CP1
CP2
SECTION OF JACK
RECORD/PLAYBACK BOARD
L053 MW ANT
J101 ANTENNA
AM
FM 300Ω
FM INPUT
FM OSC
AM OSC
AM ANT
FM RF
FM TRACKING
(CLEAR)
L001 FM OSC
RV201 10k 19kHz ADJ
S3 POWER ON (PUSH/PUSH) OFF
J701 HEADPHONES
S7 SYSTEM 4CH 2CH
S6 LOUDNESS ON OFF
RV504,604 250k(B) VOLUME
RV503 250k(Z) BALANCE
RV502,602 250k(A) BASS
RV501,601 250k(A) TREBLE
TONE
S1-1 FUNCTION
S1-2 FUNCTION
MW, SW1, SW2
FM
PHONO
CASSETTE
RECORD/PLAYBACK BOARD (INPUT)
MIC JACK BOARD (OUTPUT)
PLAYER SECTION (PNJ501,601)
PNP601
PNP501
SW2
SW1
MW (FM,PHONO,CASSETTE)
S2 MUTING (ON: WHEN CHANGING FUNCTION SWITCH POSITION)
CT051 (SW2 ANT)
CT052 (SW1 ANT)
CT053 (MW ANT)
CT107 (SW2 OSC)
CT108 (SW1 OSC)
CT109 (MW OSC)
L051 (SW2 ANT)
L052 (SW1 ANT)
L054 (SW2 OSC)
L055 (SW1 OSC)
L056 (MW OSC)

※ These pins are not connected to any contact.

4-3. SCHEMATIC DIAGRAM


【MAIN BOARD】
S1-2 FUNCTION SW2
SW1 MW (FM, PHONO, CASSETTE)
J101 ANTENNA
FM 300Ω
AM
BPF101
Q101 2SC710 FM OSC
Q102 2SC710 FM MIX
Q103,104 2SC710 FM IF AMP
Q105 2SC710 IF AMP
Q106 2SC710
D101 1S1555 AM DET
D102,103 1S1555 FM DET
L101 FM RF
IFT101
CF101
CF102
IFT102
IFT103
CR101
L051 SW2 ANT
L052 SW1 ANT
L053 MW ANT
L054 SW2 OSC
L055 SW1 OSC
L056 MW OSC
L057 100μH
CV101
CV102
CV103
CT051
CT052
CT053
CT101
CT107
CT108
CT109
Q109 2SC710 AM OSC
Q107 2SC710 FM OSC
Q108 2SC710 AFC
D106 1S1555
Q110 2SC403C AM MIX
Q111 2SC403C AM IF AMP
CFU101
D104 IT22A
D107 1S1555
D105 1S1555
L001 FM OSC
CV001
CT001
S2 MUTING (ON: WHEN CHANGING FUNCTION SWITCH POSITION)
ME1 SIGNAL
IC201 HA1156 MPX
AMP
DECODER
LAMP DRIVER
PD
VCO
1/2
RV201 10k 19kHz ADJ
S1-1 FUNCTION MW, SW1, SW2
FM
PHONO
CASSETTE
Q501 2SC1631 AUDIO AMP
Q502 2SC631A AUDIO AMP
IC701 STK439 POWER AMP
TONE
BASS
TREBLE
LOUDNESS
VOLUME
BALANCE
RV501
RV502
RV503 250k(Z)
RV504 250k(B)
S6-1
S6-2
RV601
RV602
RV604
J701 HEADPHONES
S7 SYSTEM 4CH 2CH
P701 SPEAKER FRONT
P702 SPEAKER BACK
P703 REC OUT
RECORD/PLAYBACK BOARD
IC701(1/2)
PNJ501 (L)
PNJ601 (R)
PNP501
PNP601
S5 PLAYER POWER ON OFF
M
PLAYER BSR-129R2
CNJ901
BRN GRY VIO WHT
【LED BOARD(M)】
D201 SEL103R FM STEREO
Q901 2SC1061 REGULATOR
Q902 2SC1890 REGULATOR
R902 47(1W)
R905 560 (1W)
R906 75 (1/2W)
D901 S2VB20
D902 SIRB10
D903 EQA01-22R
C901 1000 63V
C905 3300 16V
CP2
CP1
S3 POWER
S4 VOLTAGE SELECTOR
ORG 120V
YEL 110V
WHT 0V
RED
GRY 120V
BLU 110V
VIO 0V
BLU
T1
AC IN
F1 1.6AT
(AMP B+)
(AMP GROUND)
(MOTOR B+)
(MOTOR B-)
【LAMP BOARD(B)】
【LAMP BOARD(A)】
PL
DIAL
17V
14V
51V
50V

Note:
- Co
lef
- All
50
- All
kΩ
- 5%
- Tra
- Vo
no
- Re
VC
- Vo
- Vo
du
- Sw


Q103,104 2SC710 FM IF AMP
Q105 2SC710 IF AMP
Q106 2SC710
D101 1S1555 AM DET
D102,103 1S1555 FM DET
IFT102
IFT103
CR101
CF101
CF102
D106 1S1555
Q110 2SC403C AM MIX
Q111 2SC403C AM IF AMP
CFU101
D104 IT22A
D107 1S1555
D105 1S1555
ME1
SIGNAL
S2 MUTING (ON: WHEN CHANGING FUNCTION SWITCH POSITION)
S1-2-10
Q501 2SC1631 AUDIO AMP
Q502 2SC631A AUDIO AMP
IC701 STK439 POWER AMP
TONE
BASS
TREBLE
LOUDNESS
VOLUME
BALANCE
S6-1
S6-2
S7 SYSTEM
4CH
2CH
J701 HEADPHONES
P701 SPEAKER FRONT
P702 SPEAKER BACK
P703 REC OUT
S1-1-1
S1-1-4
RECORD/PLAYBACK BOARD
IC701(1/2)

Note:

- Components for right channel have the same values as for left channel. Reference numbers are coded from 601.
- All capacitors are in μF unless otherwise noted. pF = $\mu\mu$F 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000 Ω, MΩ = 1000 kΩ.
- ⌇ : fusible resistor.
- 5 % indicates component tolerance.
- △ : internal component.
- Transistor is used for Q108.
- ▬ : B+ bus.
- ▭ : panel designation.
- ▭ : adjustment for repair.
- ⏚ : direct connection to points marked ⏚ on the chassis.
- ⫻ : chassis ground.
- – – – : B– bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  ( ) : AM
  [ ] : FORWARD
- Voltages in [ ] are dc with respect to B– bus.
- Voltage variations may be noted due to normal production tolerances.
- Switch

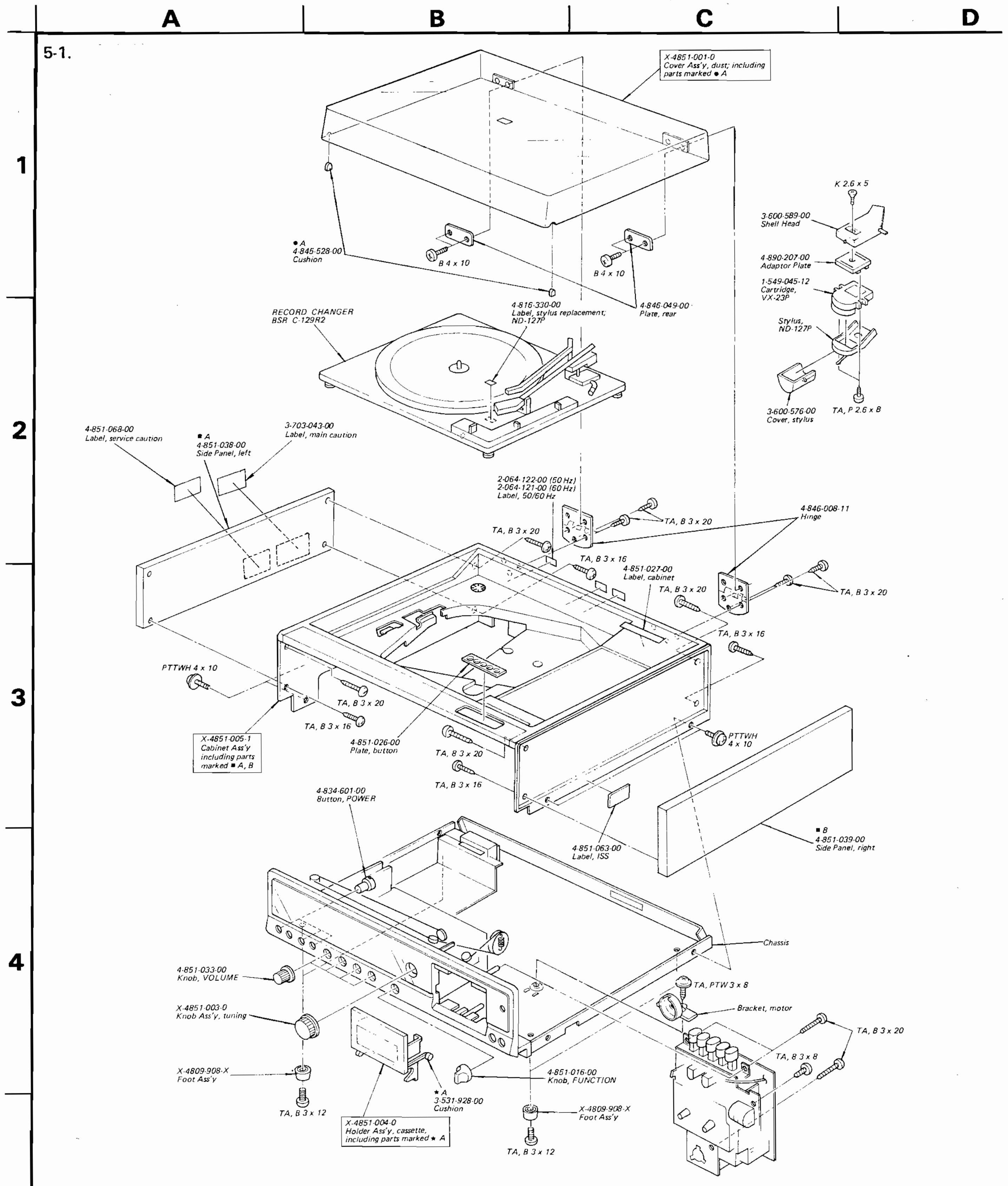
Ref. No.	Switch	Position
S1	FUNCTION	FM
S2	MUTING	OFF
S3	POWER	OFF
S4	VOLTAGE SELECTOR	110 V
S5	PLAYER POWER	OFF
S6	LOUDNESS	OFF
S7	SYSTEM	2CH

Note: The components identified by shading are critical for safety. Replace only with part number specified.

SECTION 5

EXPLODED VIEWS

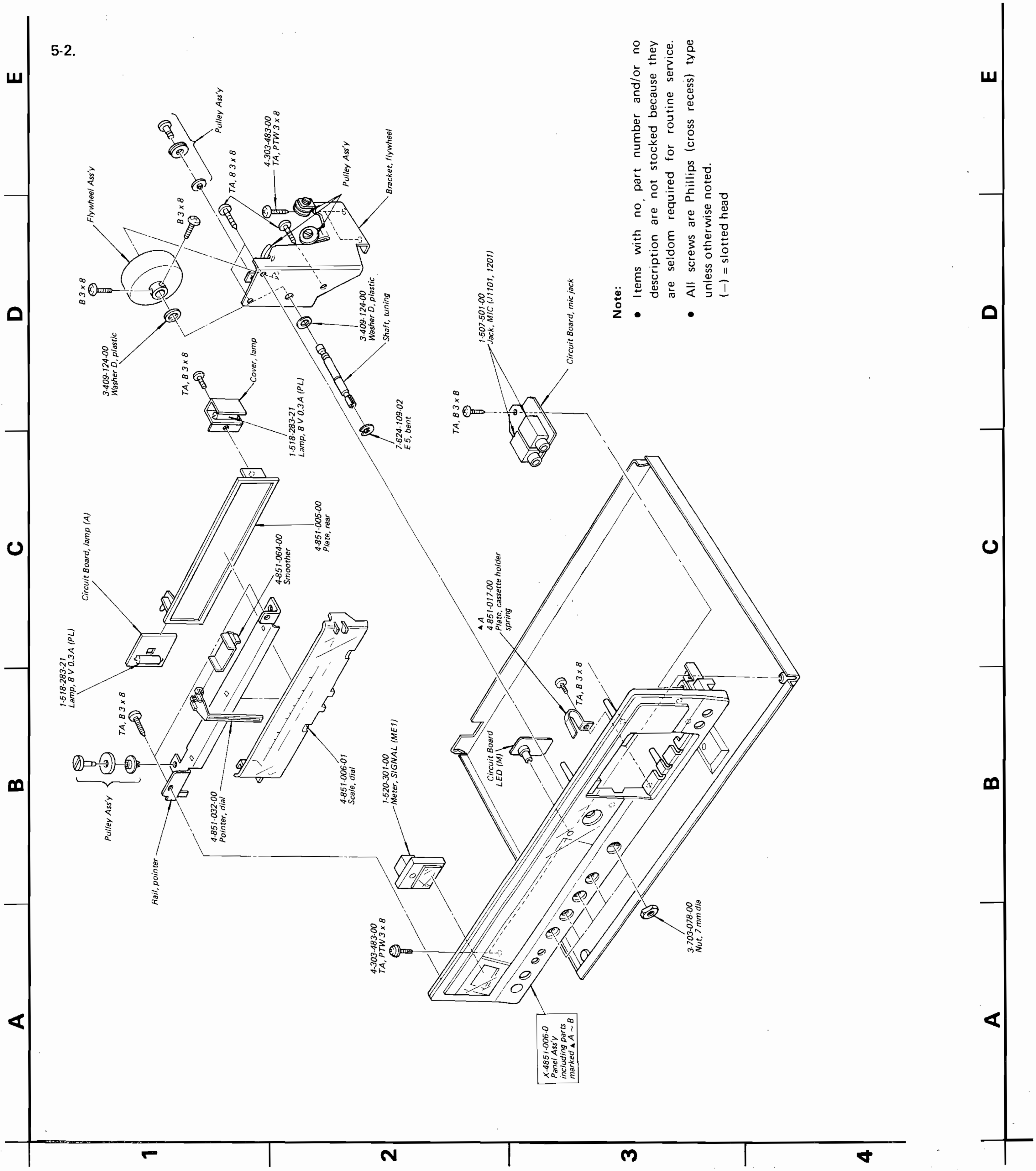
5-1.


A
B
C
D
1
2
3
4
5
X-4851-001-0
Cover Ass'y, dust; including parts marked ● A
K 2.6 x 5
3-600-589-00
Shell Head
● A
4-845-528-00
Cushion
B 4 x 10
B 4 x 10
4-890-207-00
Adaptor Plate
1-549-045-12
Cartridge,
VX-23P
4-816-330-00
Label, stylus replacement;
ND-127P
4-846-049-00
Plate, rear
RECORD CHANGER
BSR C-129R2
Stylus,
ND-127P
3-600-576-00
Cover, stylus
TA, P 2.6 x 8
4-851-068-00
Label, service caution
■ A
4-851-038-00
Side Panel, left
3-703-043-00
Label, main caution
2-064-122-00 (50 Hz)
2-064-121-00 (60 Hz)
Label, 50/60 Hz
TA, B 3 x 20
TA, B 3 x 20
4-846-008-11
Hinge
TA, B 3 x 16
4-851-027-00
Label, cabinet
TA, B 3 x 20
TA, B 3 x 20
TA, B 3 x 16
PTTWH 4 x 10
TA, B 3 x 20
TA, B 3 x 16
X-4851-005-1
Cabinet Ass'y
including parts
marked ■ A, B
4-851-026-00
Plate, button
TA, B 3 x 20
PTTWH
4 x 10
TA, B 3 x 16
4-834-601-00
Button, POWER
4-851-063-00
Label, ISS
■ B
4-851-039-00
Side Panel, right
Chassis
4-851-033-00
Knob, VOLUME
TA, PTW 3 x 8
X-4851-003-0
Knob Ass'y, tuning
Bracket, motor
TA, B 3 x 20
TA, B 3 x 8
X-4809-908-X
Foot Ass'y
★ A
3-531-928-00
Cushion
4-851-016-00
Knob, FUNCTION
TA, B 3 x 12
X-4851-004-0
Holder Ass'y, cassette,
including parts marked ★ A
X-4809-908-X
Foot Ass'y
TA, B 3 x 12

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (—) = slotted head

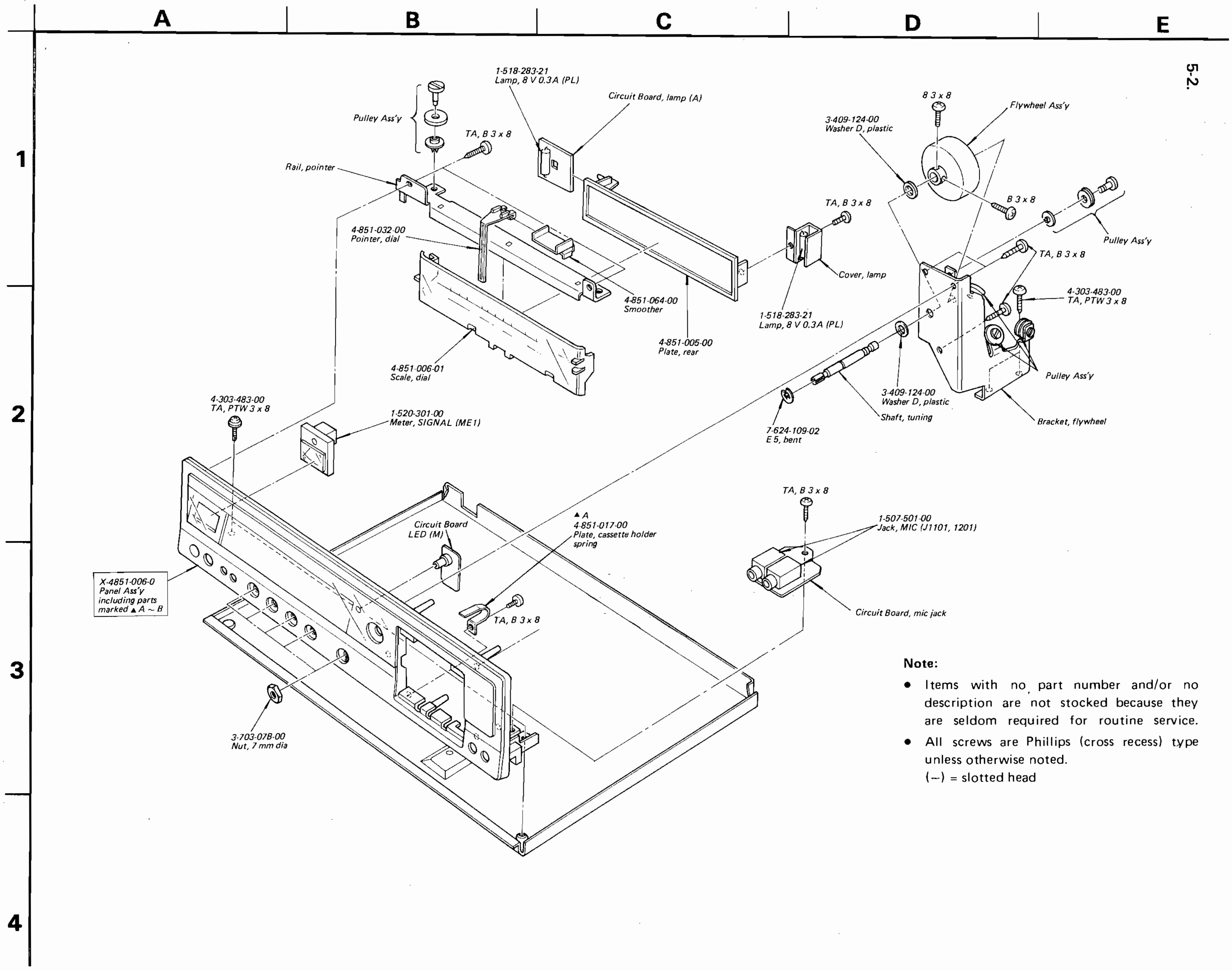
5-2.


E
D
C
B
A
1
2
3
4
Pulley Ass'y
4-303-483-00
TA, PTW 3 x 8
TA, B 3 x 8
Pulley Ass'y
Bracket, flywheel
Flywheel Ass'y
B 3 x 8
B 3 x 8
3-409-124-00
Washer D, plastic
Shaft, tuning
3-409-124-00
Washer D, plastic
1-507-501-00
Jack, MIC (J1101, 1201)
Circuit Board, mic jack
TA, B 3 x 8
Cover, lamp
1-518-283-21
Lamp, 8 V 0.3A (PL)
7-624-109-02
E 5, bent
TA, B 3 x B
Circuit Board, lamp (A)
4-851-064-00
Smoother
4-851-005-00
Plate, rear
▲ A
4-851-017-00
Plate, cassette holder
spring
1-518-283-21
Lamp, 8 V 0.3A (PL)
TA, B 3 x 8
TA, B 3 x 8
Circuit Board
LED (M)
Pulley Ass'y
4-851-032-00
Pointer, dial
4-851-006-01
Scale, dial
1-520-301-00
Meter, SIGNAL (ME1)
Rail, pointer
4-303-483-00
TA, PTW 3 x 8
3-703-078-00
Nut, 7 mm dia
X-4851-006-0
Panel Ass'y
including parts
marked ▲ A ~ B

Note:

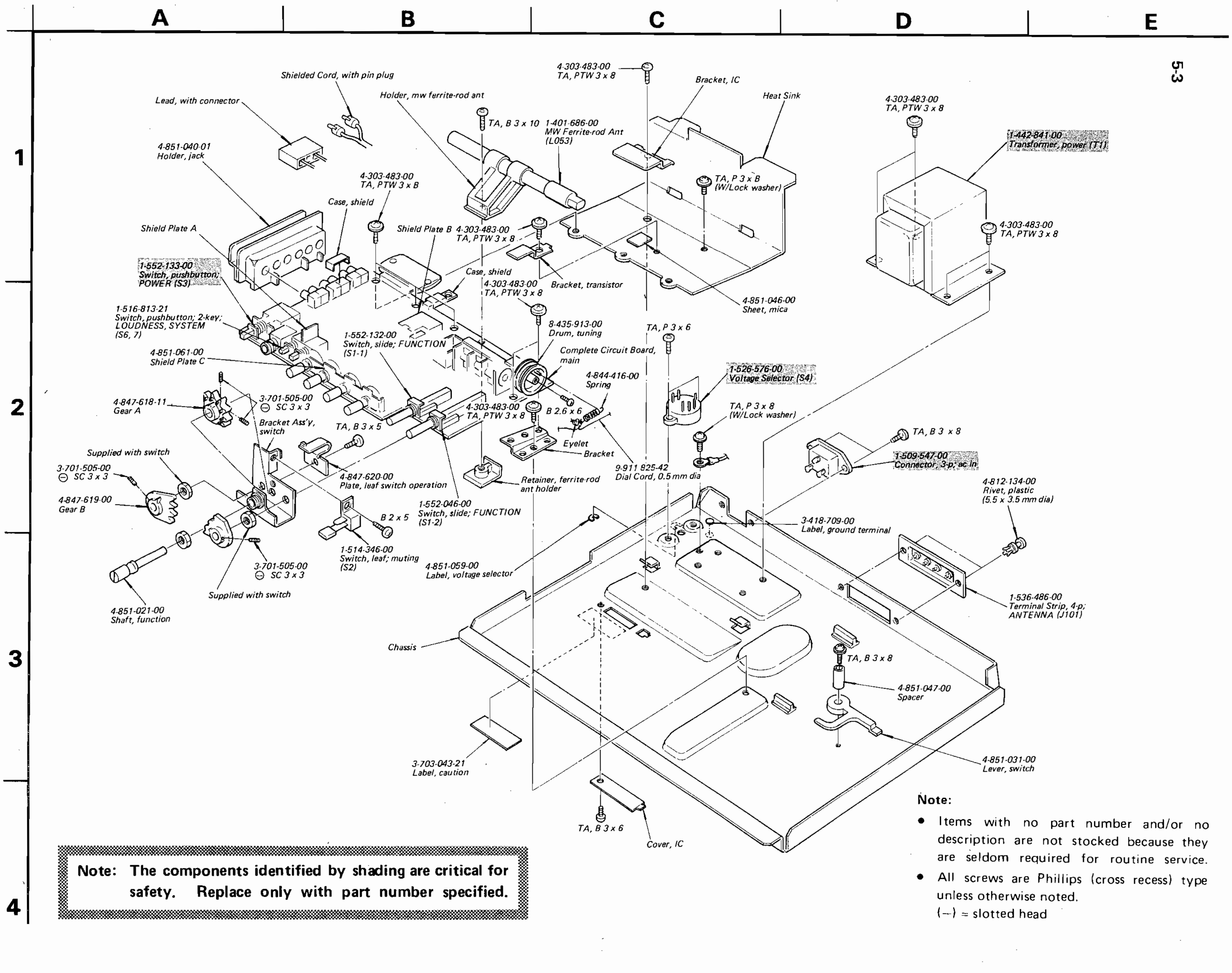
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (—) = slotted head

5-2.


A
B
C
D
E
1
2
3
4
1-518-283-21
Lamp, 8 V 0.3A (PL)
Circuit Board, lamp (A)
Pulley Ass'y
TA, B 3 x 8
Rail, pointer
4-851-032-00
Pointer, dial
4-851-064-00
Smoother
4-851-005-00
Plate, rear
4-851-006-01
Scale, dial
4-303-483-00
TA, PTW 3 x 8
1-520-301-00
Meter, SIGNAL (ME1)
X-4851-006-0
Panel Ass'y
including parts
marked ▲ A ~ B
Circuit Board
LED (M)
▲ A
4-851-017-00
Plate, cassette holder
spring
TA, B 3 x 8
3-703-078-00
Nut, 7 mm dia
8 3 x 8
3-409-124-00
Washer D, plastic
Flywheel Ass'y
TA, B 3 x 8
B 3 x 8
Pulley Ass'y
TA, B 3 x 8
4-303-483-00
TA, PTW 3 x 8
Cover, lamp
1-518-283-21
Lamp, 8 V 0.3A (PL)
Pulley Ass'y
3-409-124-00
Washer D, plastic
Shaft, tuning
Bracket, flywheel
7-624-109-02
E 5, bent
TA, B 3 x 8
1-507-501-00
Jack, MIC (J1101, 1201)
Circuit Board, mic jack

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head

5-3


A
B
C
D
E
1
2
3
4
Shielded Cord, with pin plug
Lead, with connector
Holder, mw ferrite-rod ant
TA, B 3 x 10
1-401-686-00
MW Ferrite-rod Ant
(L053)
4-303-483-00
TA, PTW 3 x 8
Bracket, IC
Heat Sink
4-851-040-01
Holder, jack
4-303-483-00
TA, PTW 3 x B
Case, shield
Shield Plate A
Shield Plate B
4-303-483-00
TA, PTW 3 x 8
TA, P 3 x B
(W/Lock washer)
1-552-133-00
Switch, pushbutton;
POWER (S3)
Case, shield
4-303-483-00
TA, PTW 3 x 8
Bracket, transistor
4-851-046-00
Sheet, mica
1-516-813-21
Switch, pushbutton; 2-key;
LOUDNESS, SYSTEM
(S6, 7)
1-552-132-00
Switch, slide; FUNCTION
(S1-1)
8-435-913-00
Drum, tuning
TA, P 3 x 6
Complete Circuit Board,
main
4-851-061-00
Shield Plate C
4-844-416-00
Spring
1-526-576-00
Voltage Selector (S4)
4-847-618-11
Gear A
3-701-505-00
⊖ SC 3 x 3
Bracket Ass'y,
switch
TA, B 3 x 5
4-303-483-00
TA, PTW 3 x 8
B 2.6 x 6
TA, P 3 x 8
(W/Lock washer)
Eyelet
Bracket
Supplied with switch
3-701-505-00
⊖ SC 3 x 3
4-847-620-00
Plate, leaf switch operation
Retainer, ferrite-rod
ant holder
9-911 825-42
Dial Cord, 0.5 mm dia
4-847-619-00
Gear B
1-552-046-00
Switch, slide; FUNCTION
(S1-2)
B 2 x 5
1-514-346-00
Switch, leaf; muting
(S2)
3-701-505-00
⊖ SC 3 x 3
4-851-059-00
Label, voltage selector
Supplied with switch
4-851-021-00
Shaft, function
Chassis
3-703-043-21
Label, caution
TA, B 3 x 6
Cover, IC
4-303-483-00
TA, PTW 3 x 8
1-442-841-00
Transformer, power (T1)
4-303-483-00
TA, PTW 3 x 8
TA, B 3 x 8
1-509-547-00
Connector, 3-p; ac in
4-812-134-00
Rivet, plastic
(5.5 x 3.5 mm dia)
3-418-709-00
Label, ground terminal
1-536-486-00
Terminal Strip, 4-p;
ANTENNA (J101)
TA, B 3 x 8
4-851-047-00
Spacer
4-851-031-00
Lever, switch

Note:
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(–) = slotted head

Note: The components identified by shading are critical for safety. Replace only with part number specified.

SECTION 6

ELECTRICAL PARTS LIST

SEMICONDUCTORS

Transistors

Ref. No.	*Part No.*	*Description*
Q101 ~109		2SC710
Q110, 111		2SC403C
⇒Q501, 601		2SC632A
⇒Q502, 602		2SC632A
Q901		2SC1061
⇒Q902		2SC926A

ICs

Ref. No.	*Part No.*	*Description*
IC201		HA1156
IC701		STK439

Diodes

Ref. No.	*Part No.*	*Description*
D101 ~103		1S1555
D104		1T22A
D105 ~107		1S1555
D201		SEL103R
D901		S2VB20
D902		SIRB10
⇒D903		EQB01-22

COILS

Ref. No.	*Part No.*	*Description*
L001	1-405-732-00	FM Osc
L051	1-401-684-00	SW2 Ant
L052	1-401-685-00	SW1 Ant
L053	1-401-686-00	MW Ferrite-rod Ant
L054	1-405-749-00	SW2 Osc
L055	1-405-748-00	SW1 Osc
L056	1-405-732-00	MW Osc
L057	1-407-169-XX	100 μH, microinductor
L151	1-407-178-XX	1 μH, microinductor

TRANSFORMERS

Ref. No.	*Part No.*	*Description*
IFT101	1-404-004-00	FM IFT
IFT103	1-403-822-21	FM Discriminator
CFU101	1-403-150-00	AM IFT, tripletune
T1	1-442-841-00	Power
CF101, 102	1-527-220-XX	Filter Ceramic, 10.7 MHz
BPF101	1-231-313-11	Band-pass Filter

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50 WV or less are not indicated except for electrolytics.
pF = μμF, elect = electrolytic

Ref. No.	*Part No.*	*Description*	
C001	1-102-684-11	8 p	
C002	1-101-005-11	0.022	
C003	1-102-806-11	27 p	
C004	1-102-681-11	2 p	
C005	1-101-005-11	0.022	
C006		0.2	12 V
C051	1-102-961-11	27 p	
C052	1-102-808-11	6 p	
C053	1-102-123-11	0.0033	
C054	1-102-251-11	15 p	
C055, 056	1-102-290-11	12 p	
C057, 058	1-102-282-11	8 p	
C059	1-103-742-11	5100 p	polystyrol (5%)
C060	1-103-729-11	1500 p	polystyrol (5%)
C061	1-107-096-12	300 p	mylar (5%)
C062	1-102-513-11	18 p	
C063	1-107-096-12	300 p	mylar
C064	1-102-508-11	10 p	
C065	1-102-119-11	0.0015	
C066	1-102-508-11	10 p	
C067	1-101-004-11	0.01	
C068, 069	1-101-005-11	0.022	
C101	1-102-949-11	12 p	
C102, 103	1-101-005-11	0.022	
C104	1-101-586-11	0.75 p	
C105	1-102-945-11	8 p	
C106	1-102-121-11	0.0022	
C107	1-102-979-11	240 p	

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Ref. No.	*Part No.*	*Description*		
C108, 109	1-101-005-11	0.022		
C110	1-101-004-11	0.01		
C111	1-102-962-11	30 p		
C112	1-102-106-11	100 p		
C113	1-101-005-11	0.022		
C115	1-102-121-11	0.0022		
C116	1-121-726-11	0.47	50 V	elect
C117, 118	1-102-936-11	3 p		
C119	1-121-651-11	10	16 V	elect
C120, 121	1-101-005-11	0.022		
C122	1-121-419-11	220	6.3 V	elect
C123, 124	1-101-005-11	0.022		
C125	1-161-074-11	0.047		boundary layer
C126	1-101-005-11	0.022		
C127	1-121-410-11	47	25 V	elect
C150	1-102-121-11	0.0022		
C151	1-102-947-11	10 p		
C152, 153	1-101-004-11	0.01		
C154	1-101-005-11	0.022		
C156	1-121-651-11	10	16 V	elect
C157	1-101-005-11	0.022		
C158	1-121-651-11	10	16 V	elect
C159	1-101-005-11	0.022		
C202	1-102-116-11	680 p		
C203	1-121-651-11	10	16 V	elect
C204	1-108-846-12	0.056		mylar
C205	1-121-391-11	1	50 V	elect
C206, 207	1-121-726-11	0.47	50 V	elect
C208	1-103-717-11	470 p		polystyrol
C209,210	1-108-840-12	0.018		mylar
C211, 212	1-121-726-11	0.47	50 V	elect
C213	1-121-426-11	470	16 V	elect
C501, 601	1-121-915-11	4.7	25 V	elect
C502, 602	1-101-001-11	0.001		
C503, 603	1-121-395-11	4.7	25 V	elect
C504, 604	1-121-398-11	10	25 V	elect
C521, 621	1-102-958-11	20 p		

Ref. No.	*Part No.*	*Description*		
C551, 651	1-102-119-11	0.0015		
C552, 652	1-102-129-11	0.01		
C553, 653	1-102-126-11	0.0056		
C554, 654	1-108-846-12	0.056		mylar
C555, 655	1-108-849-12	0.1		mylar
C556, 656	1-101-001-11	0.001		
C557, 657	1-121-391-11	1	50 V	elect
C558, 658	1-101-124-11	150 p		
C559, 659	1-102-128-11	0.0082		
C701, 801	1-108-849-12	0.1		mylar
C702	1-121-409-11	47	16 V	elect
C703, 803	1-102-976-11	180 p		
C704, 804	1-102-106-11	100 p		
C705, 805	1-121-421-11	220	16 V	elect
C706, 806	1-121-410-11	47	25 V	elect
C707	1-123-264-11	220	63 V	elect
C708, 808	1-121-361-11	470	35 V	elect
C709, 809	1-101-005-11	0.022		
C901	1-123-265-11	1000	63 V	elect
C902	1-102-394-11	0.01x2	250 V	
C904	1-102-394-11	0.01x2	250 V	
C905	1-123-071-11	3300	16 V	elect
C906	1-121-410-11	47	25 V	elect
C907 ~909	1-101-005-11	0.022		
CT051~053	1-141-138-XX	Trimmer		
CT107~109	1-141-138-XX	Trimmer		
CV001, 101 ~ 103 CT001, 101	1-151-318-11	Tuning		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for values.

R062	1-213-100-11	470	1W	fuse
R705	1-212-881-11	100	¼W	fuse
R706, 806	1-212-889-11	220	¼W	fuse
R708, 808	1-212-958-11	10	½W	fuse
R709, 809	1-202-561-11	330	½W	composition

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Ref. No.	*Part No.*	*Description*
R901	1-202-597-11	10 k ½W composition
R902	1-213-076-11	47 1W fuse
R905	1-213-140-11	560 1W metal oxide
R906	1-212-979-11	75 ½W fuse
RV201	1-224-645-XX	10 k adjustable
RV501, 601	1-224-723-11	250k variable, TREBLE
RV503	1-224-430-11	250k variable, BALANCE
RV504, 604	1-224-440-11	250k variable, VOLUME
RV502, 602	1-224-723-11	250k variable, BASS

SWITCHES

Ref. No.	*Part No.*	*Description*
S1-1	1-552-132-00	Slide, FUNCTION
S1-2	1-552-046-00	Slide, FUNCTION
S2	1-514-346-00	Leaf, muting
S3	1-552-133-00	Pushbutton, POWER
S4	1-526-576-00	Voltage Selector
S6, 7	1-516-813-21	Pushbutton, 2-key; LOUDNESS, SYSTEM.

MISCELLANEOUS

Ref. No.	*Part No.*	*Description*
CP1, 2	1-231-057-00	Encapsulated Component
CR101	1-231-202-11	Encapsulated Component
J701	1-507-489-21	Jack, HEADPHONES
J1101, 1201	1-507-501-00	Jack, MIC
F1	1-532-259-00	Fuse, 1.6AT
J101	1-536-520-00	Terminal Strip, 4-p; ANTENNA
ME1	1-520-301-00	Meter, SIGNAL
P701～703	1-507-500-00	Jack, phono; 2-p; SPEAKER FRONT, SPEAKER BACK, REC OUT
PL	1-518-283-00	Lamp, 8 V 0.3A
	1-509-547-00	Connector, 3-p; ac in

ACCESSORIES & PACKING MATERIALS

Part No.	*Description*
X-3701-018-3	Tips Ass'y, head cleaning
1-501-161-00	Ribbon Antenna, fm
1-534-492-00	Cord, antenna
1-534-754-00	Cord, power; parallel-blade plug
1-549-045-12	Cartridge
1-551-216-00	Cord, power; euro-plug
2-070-134-00	Spindle, auto
2-070-135-00	Spindle, manual
3-701-806-00	Adaptor, 45 r.p.m.
3-770-211-51	Manual, instruction
4-807-493-00	Sheet, protection

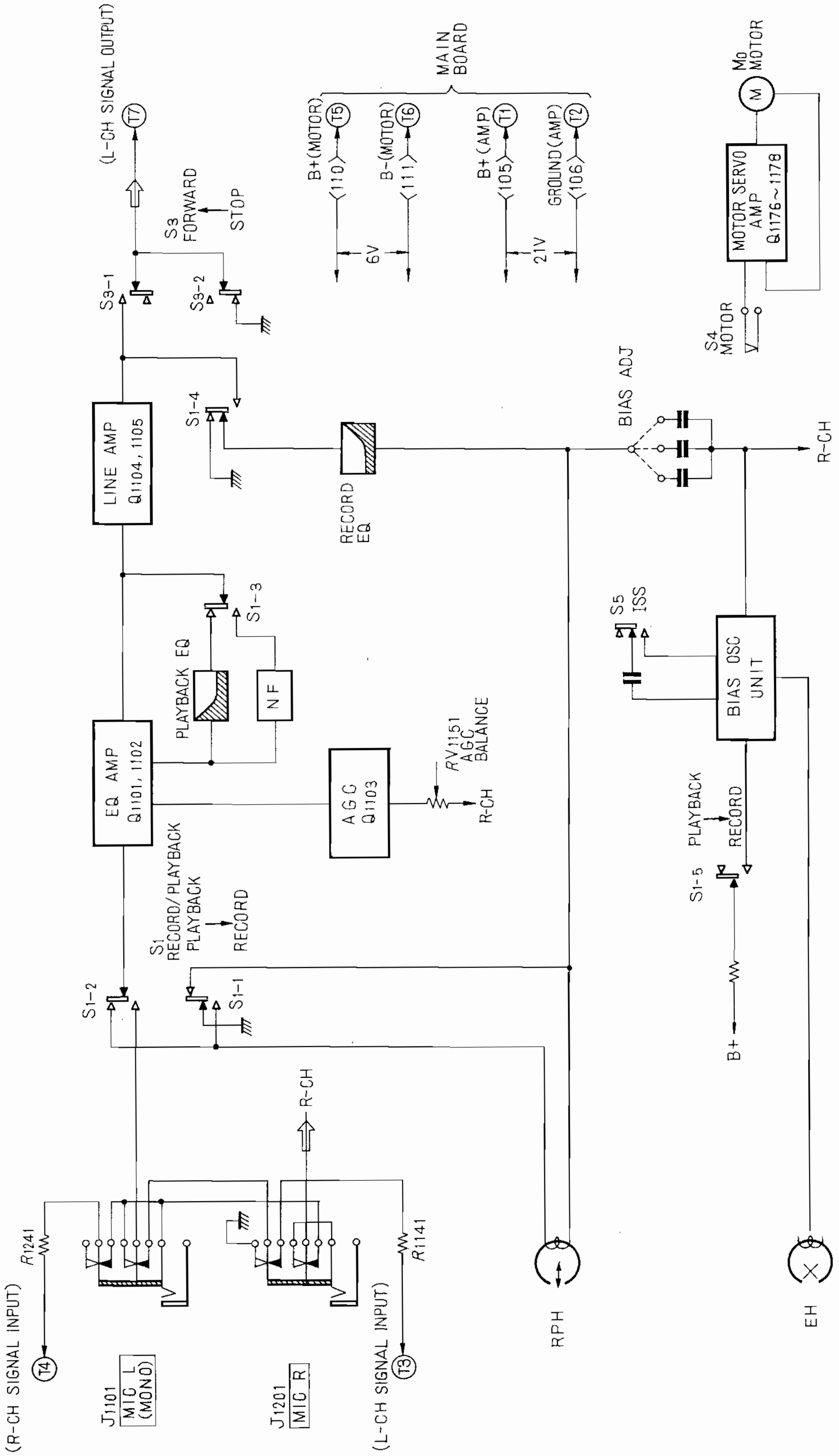
Part No.	*Description*
4-818-624-00	Protector
4-823-898-01	Pulley, for BSR (50 Hz)
4-823-898-11	Pulley, for BSR (60 Hz)
4-851-049-00	Carton
4-851-050-00	Sheet, protection; dust cover
4-851-051-00	Bag, plastic; set
4-851-052-00	Cushion, front
4-851-053-00	Cushion, rear
4-851-054-00	Cushion, left
4-851-055-00	Cushion, right
4-851-070-00	Cushion, lower

Note: The components identified by shading are critical for safety. Replace only with part number specified.

TAPE RECODER SECTION

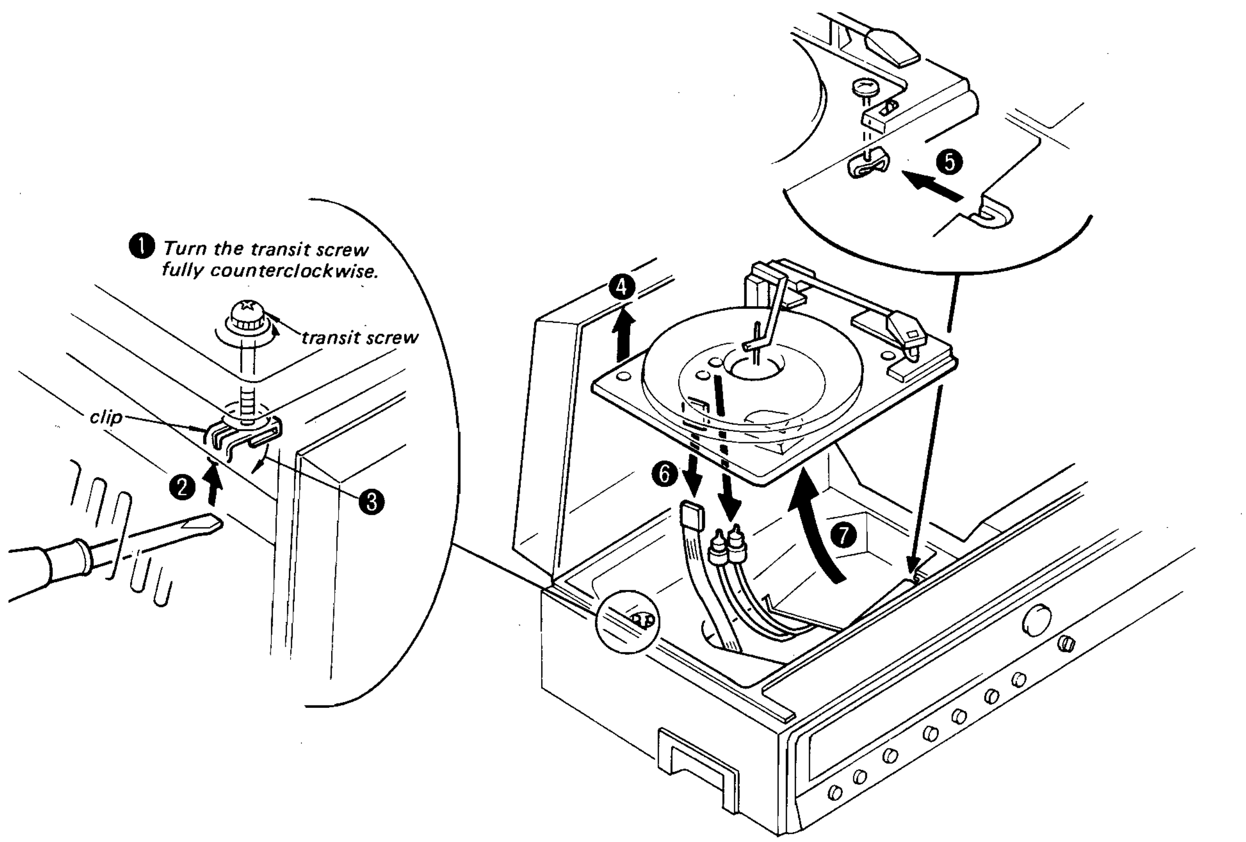
SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

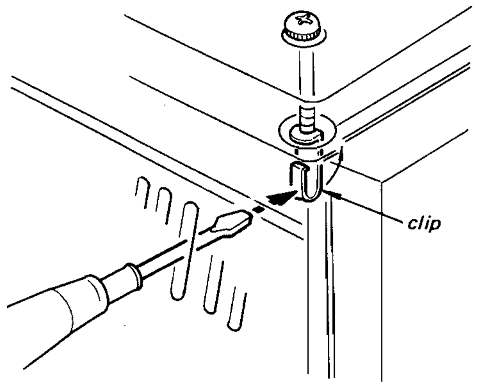

(L-CH SIGNAL OUTPUT)
T7
S3 FORWARD
STOP
S3-1
S3-2
MAIN BOARD
B+(MOTOR)
110
T5
B-(MOTOR)
111
T6
6V
B+(AMP)
105
T1
GROUND(AMP)
106
T2
21V
Mo MOTOR
M
MOTOR SERVO AMP
Q1176~1178
S4 MOTOR
LINE AMP
Q1104, 1105
S1-4
RECORD EQ
BIAS ADJ
R-CH
S1-3
PLAYBACK EQ
NF
S5 ISS
BIAS OSC UNIT
EQ AMP
Q1101, 1102
AGC
Q1103
RV1151 AGC BALANCE
R-CH
PLAYBACK
RECORD
S1-5
B+
S1 RECORD/PLAYBACK
PLAYBACK
RECORD
S1-2
S1-1
R-CH
R1241
R1141
(R-CH SIGNAL INPUT)
T4
J1101
MIC L (MONO)
J1201
MIC R
(L-CH SIGNAL INPUT)
T3
RPH
EH

2-1. REMOVAL

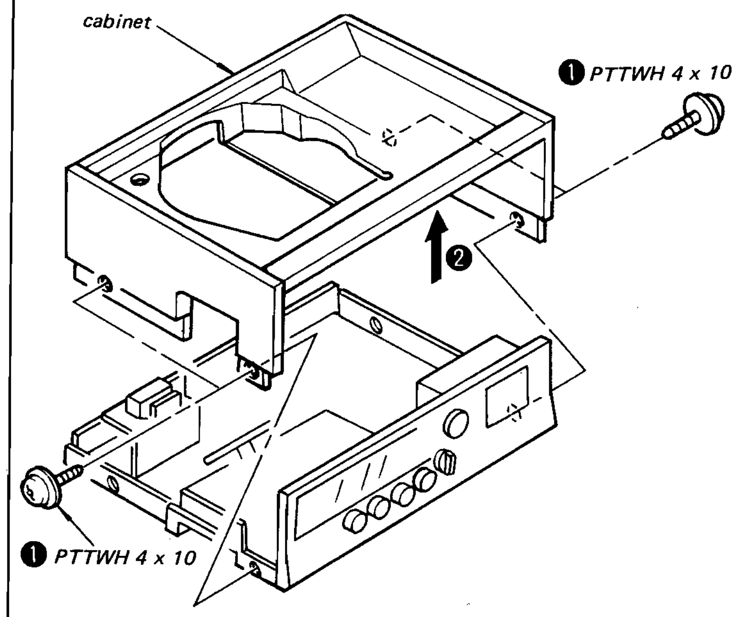
Record Changer Removal


❶ Turn the transit screw fully counterclockwise.
transit screw
clip
❷
❸
❹
❺
❻
❼

Refastening the transit screw.



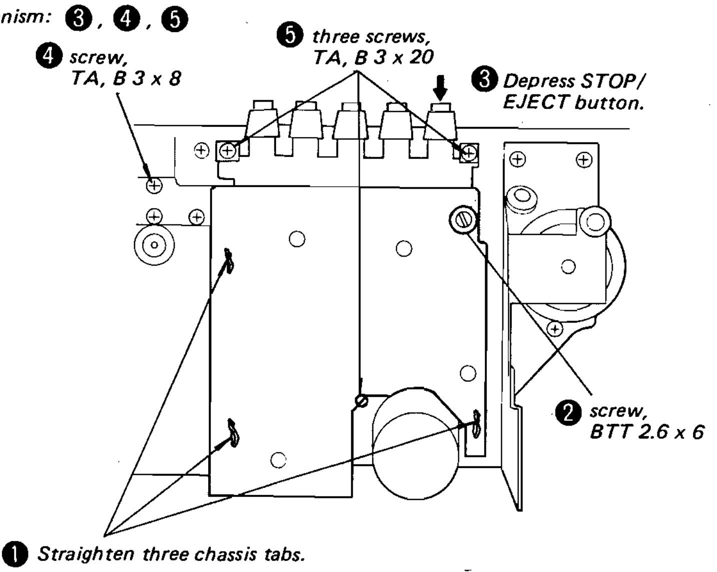
Cabinet Removal


cabinet
❶ PTTWH 4 x 10
❷
❶ PTTWH 4 x 10

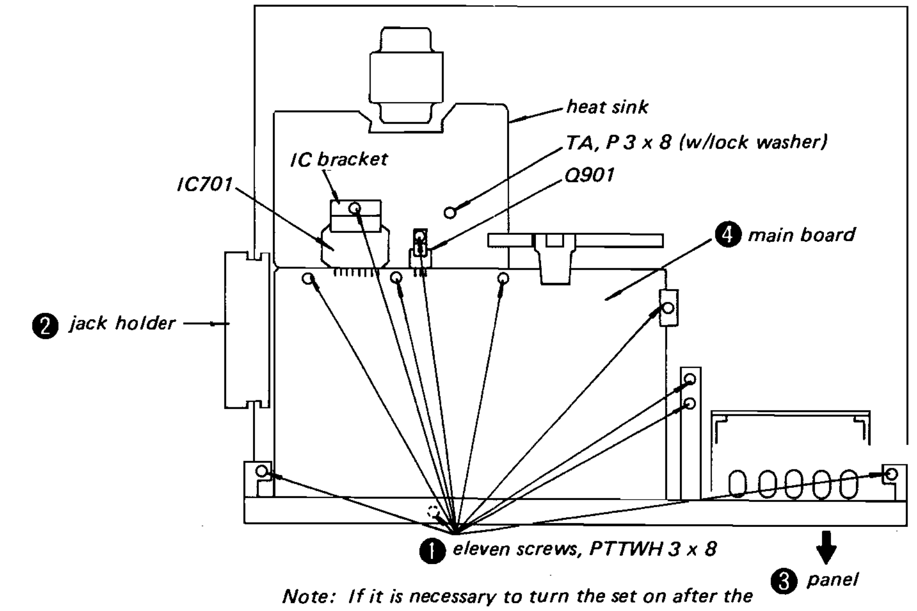
Cassette Deck Removal

Record/Playback Board: ❶ , ❷

Tape Recorder Deck Mechanism: ❸, ❹, ❺


❹ screw, TA, B 3 x 8
❺ three screws, TA, B 3 x 20
❸ Depress STOP/ EJECT button.
❷ screw, BTT 2.6 x 6
❶ Straighten three chassis tabs.

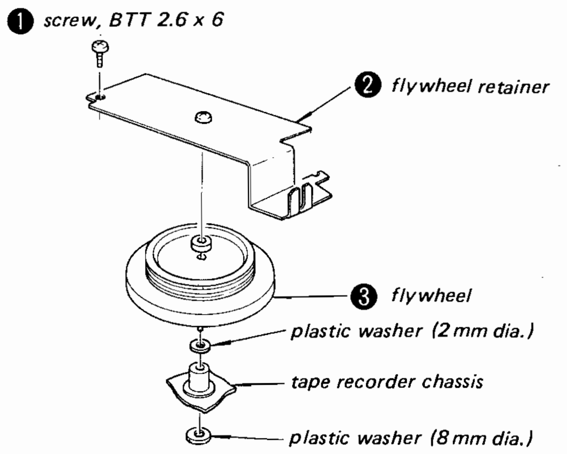
Main Board Removal


heat sink
TA, P 3 x 8 (w/lock washer)
IC bracket
IC701
Q901
❹ main board
❷ jack holder
❶ eleven screws, PTTWH 3 x 8
❸ panel

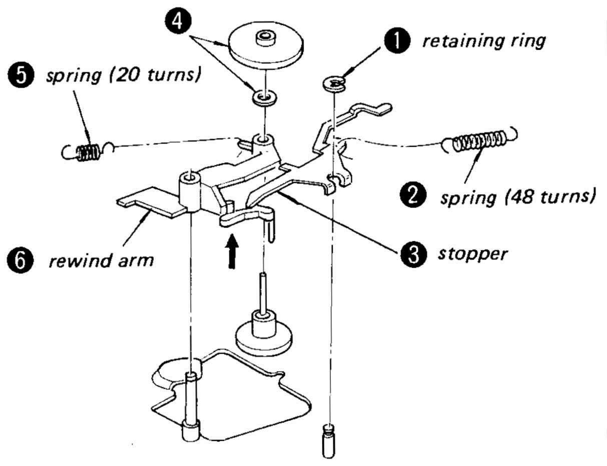
Note: If it is necessary to turn the set on after the main board removal, remove the heat sink from the chassis and remount IC701 and Q901 on the heat sink.

HMK-419 TAPE RECORDER

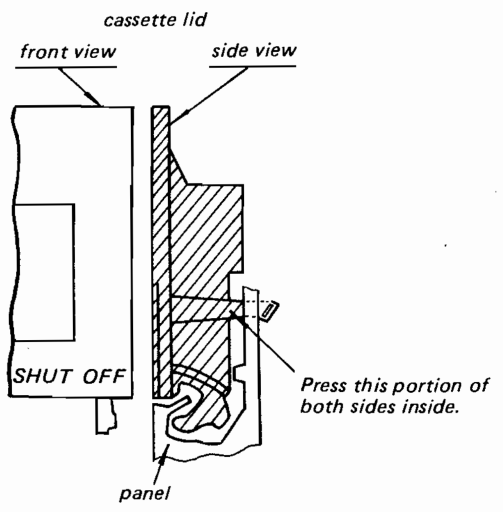
Flywheel Removal


❶ screw, BTT 2.6 x 6
❷ flywheel retainer
❸ flywheel
plastic washer (2 mm dia.)
tape recorder chassis
plastic washer (8 mm dia.)

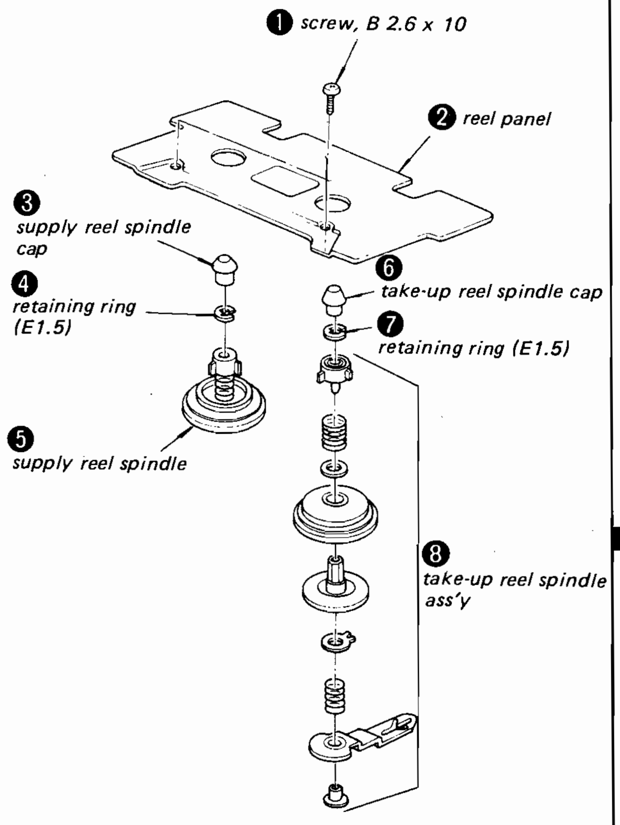
Rewind Arm Removal


❹
❶ retaining ring
❺ spring (20 turns)
❷ spring (48 turns)
❸ stopper
❻ rewind arm

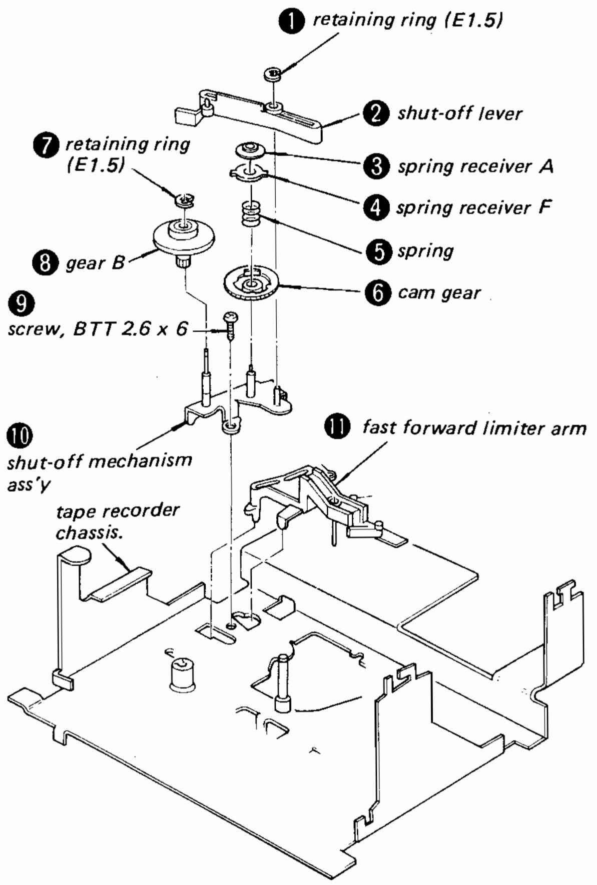
Cassette Lid Removal


cassette lid
front view
side view
SHUT OFF
Press this portion of both sides inside.
panel

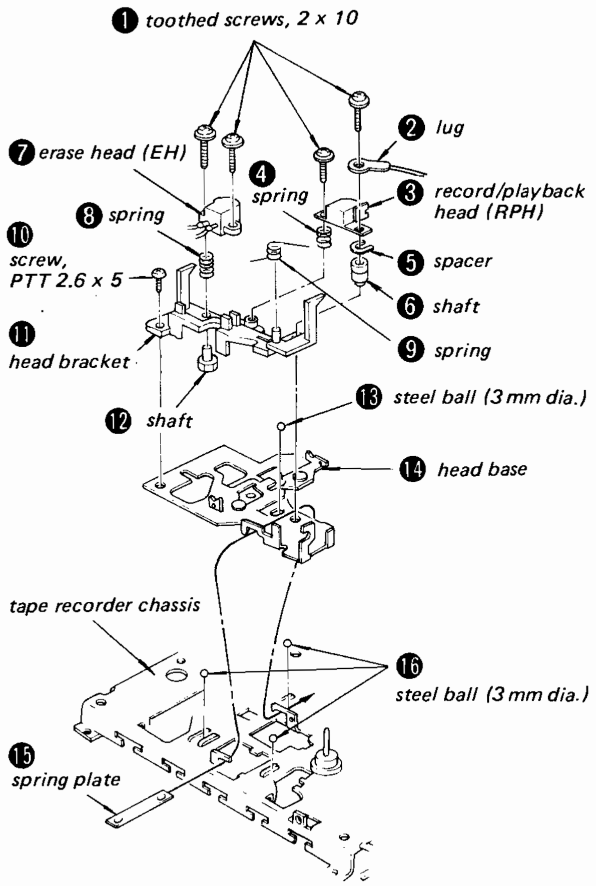
Reel Spindle Removal


❶ screw, B 2.6 x 10
❷ reel panel
❸ supply reel spindle cap
❹ retaining ring (E1.5)
❺ supply reel spindle
❻ take-up reel spindle cap
❼ retaining ring (E1.5)
❽ take-up reel spindle ass'y

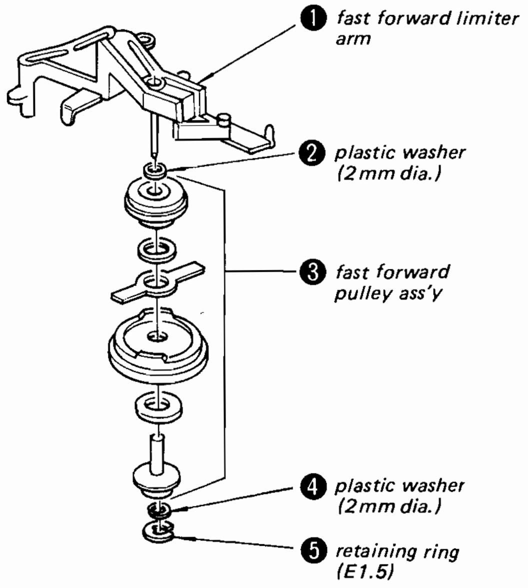
Shut-off Mechanism and Fast Forward Limiter Arm Removal


❶ retaining ring (E1.5)
❷ shut-off lever
❼ retaining ring (E1.5)
❸ spring receiver A
❹ spring receiver F
❺ spring
❽ gear B
❻ cam gear
❾ screw, BTT 2.6 x 6
❿ shut-off mechanism ass'y
⓫ fast forward limiter arm
tape recorder chassis.

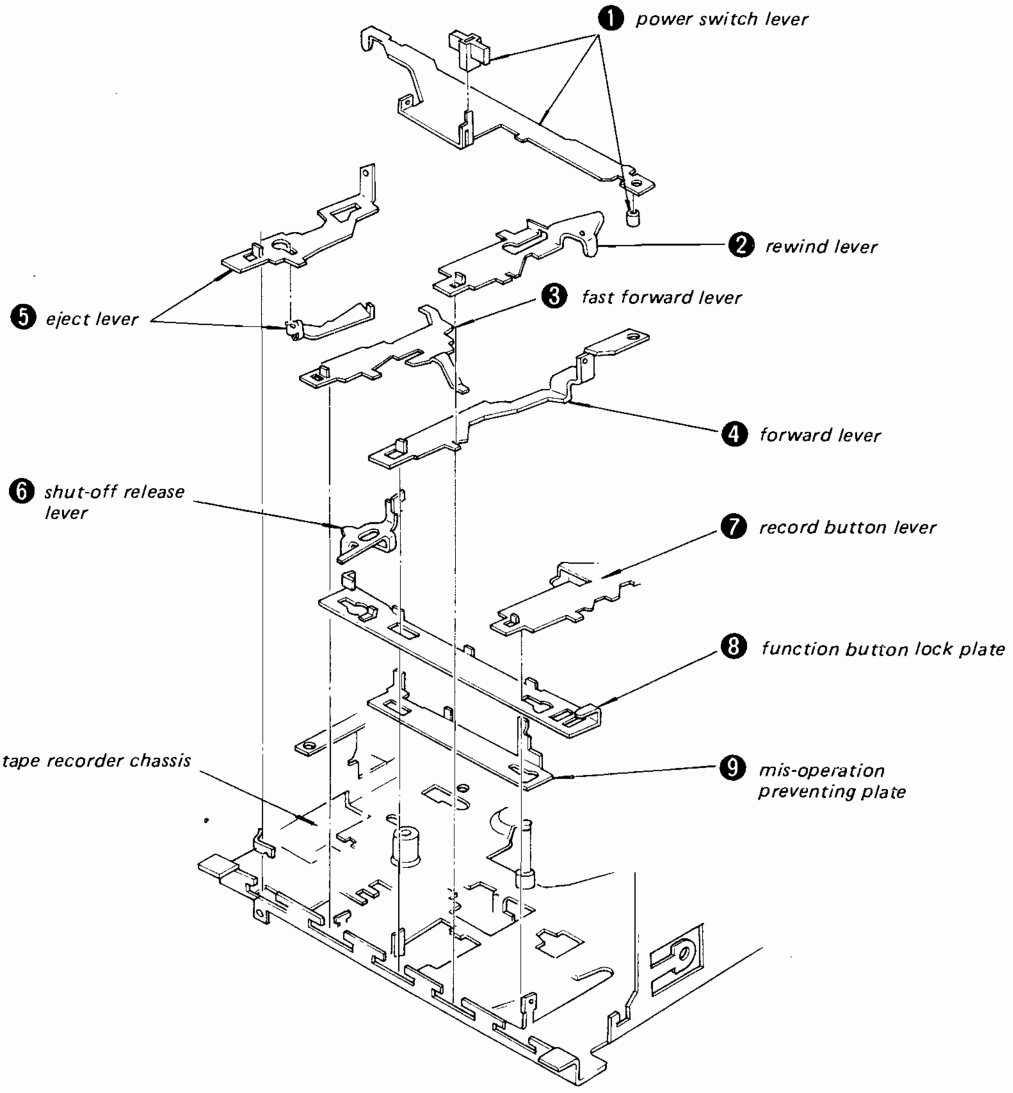
Head Base Removal


❶ toothed screws, 2 x 10
❷ lug
❼ erase head (EH)
❹ spring
❸ record/playback head (RPH)
❽ spring
❿ screw, PTT 2.6 x 5
❺ spacer
❻ shaft
❾ spring
⓫ head bracket
⓭ steel ball (3 mm dia.)
⓬ shaft
⓮ head base
tape recorder chassis
⓰ steel ball (3 mm dia.)
⓯ spring plate

Fast Forward Pulley Removal


❶ fast forward limiter arm
❷ plastic washer (2 mm dia.)
❸ fast forward pulley ass'y
❹ plastic washer (2 mm dia.)
❺ retaining ring (E1.5)

Function Button Lever Removal


❶ power switch lever
❷ rewind lever
❸ fast forward lever
❹ forward lever
❺ eject lever
❻ shut-off release lever
❼ record button lever
❽ function button lock plate
❾ mis-operation preventing plate
tape recorder chassis

SECTION 3

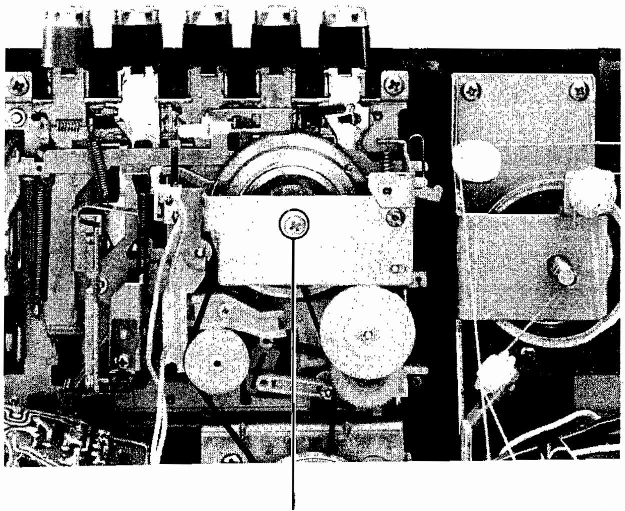
ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	

2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

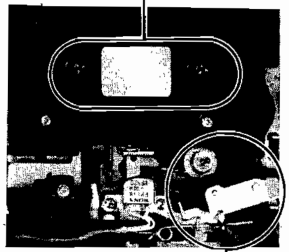


3-1. MECHANICAL ADJUSTMENTS

FUNCTION switch: CASSETTE

Take-up Torque Measurement

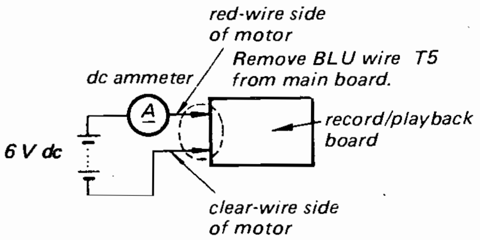
	SONY torque meter	Torque
forward	CQ-101A, CQ-102A, CQ-103A	25 – 55 g · cm (0.35 – 0.76 oz · inch)
fast forward, rewind	CQ-201A	60 g · cm (0.84 oz · inch) or more



Flywheel Thrust Play Adjustment

Procedure:

1. Mode: playback

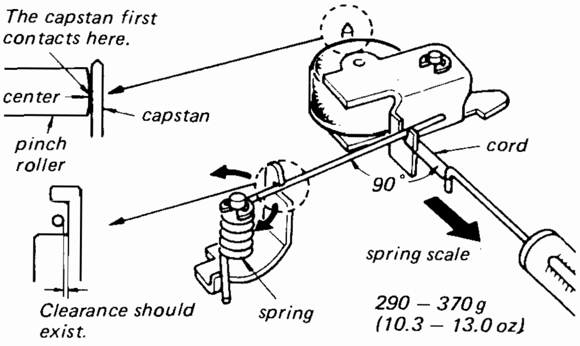

red-wire side of motor
Remove BLU wire T5 from main board.
dc ammeter
A
record/playback board
6 V dc
clear-wire side of motor

2. Loosen the screw until the screw tip is detached from the flywheel shaft.
3. Gradually turn the screw clockwise to the position where the motor current suddenly increases.
4. Then, loosen the screw about ¼ turn from the position obtained in step 3.

Pinch Roller Pressure Adjustment

– playback mode –

1. Pull the spring scale.
2. Slowly return the pinch roller and read the spring scale just when the pinch roller starts to rotate.


The capstan first contacts here.
A
center
capstan
pinch roller
cord
90°
spring scale
Clearance should exist.
spring
290 – 370 g
(10.3 – 13.0 oz)

3-2. ELECTRICAL ADJUSTMENTS

Note: The adjustments should be performed in the order given in this service manual.

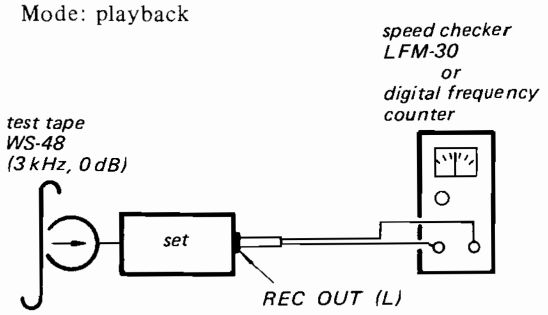
The adjustments should be performed for both L-CH and R-CH.

Switches should be set as follows.
POWER switch: ON
FUNCTION switch: CASSETTE

Tape Speed Adjustment

Procedure:

Mode: playback


speed checker
LFM-30
or
digital frequency counter
test tape
WS-48
(3 kHz, 0 dB)
set
REC OUT (L)

Adjust RV1176 for 0 % checker or 3000 Hz counter reading.

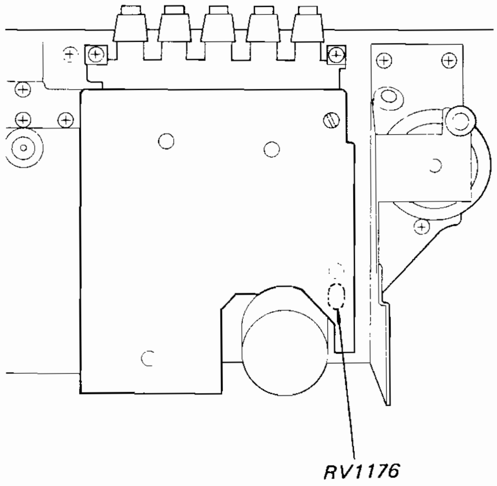
Specification:

Speed Checker	Digital Frequency Counter
−2 % ∼ +3 %	2940 – 3090 Hz

Frequency difference between beginning and end of tape should be within 1 % (30 Hz).

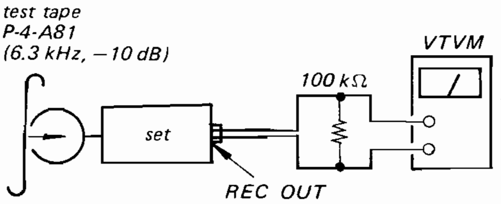
Adjustment Location:

– record/playback board –

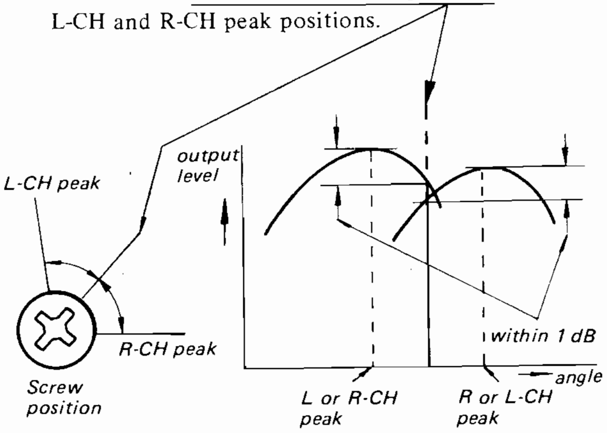


Record/playback Head Azimuth Adjustment

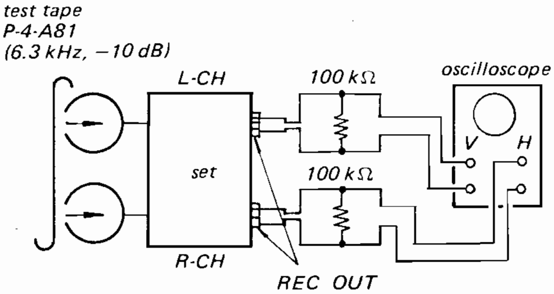
1. Mode: playback

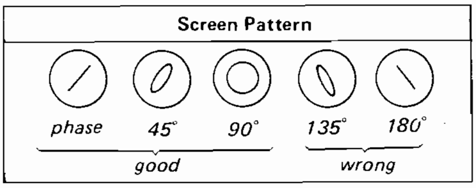

test tape
P-4-A81
(6.3 kHz, −10 dB)
VTVM
100 kΩ
set
REC OUT

2. Turn the adjustment screw for the maximum level and set it to the mechanical mid position between L-CH and R-CH peak positions.

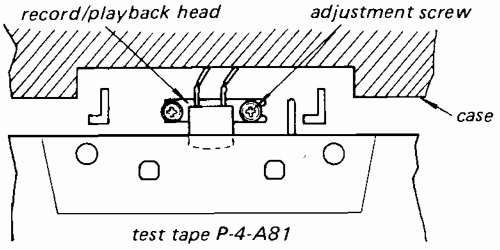

L-CH peak
output level
R-CH peak
Screw position
within 1 dB
angle
L or R-CH peak
R or L-CH peak

3. Mode: playback test tape


test tape
P-4-A81
(6.3 kHz, −10 dB)
L-CH
100 kΩ
oscilloscope
set
100 kΩ
V
H
R-CH
REC OUT


Screen Pattern
phase
45°
90°
135°
180°
good
wrong

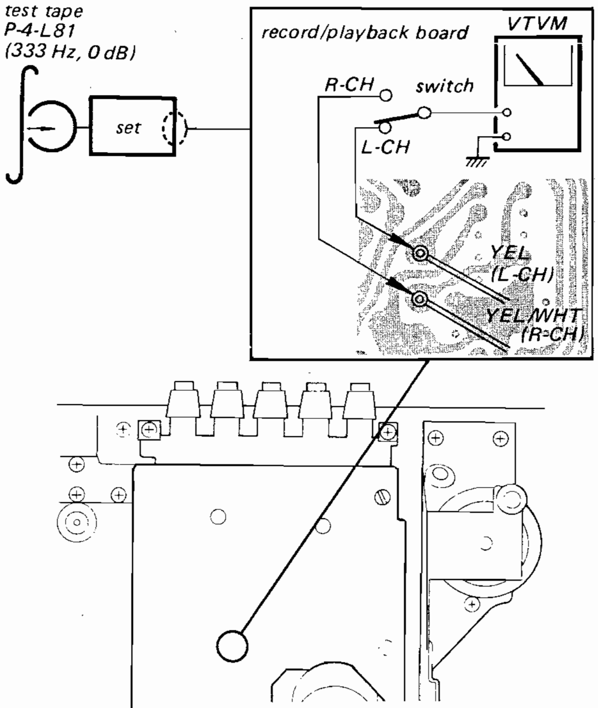
Adjustment Location:


record/playback head
adjustment screw
case
test tape P-4-A81

Playback Level Adjustment

Procedure:

Mode: playback

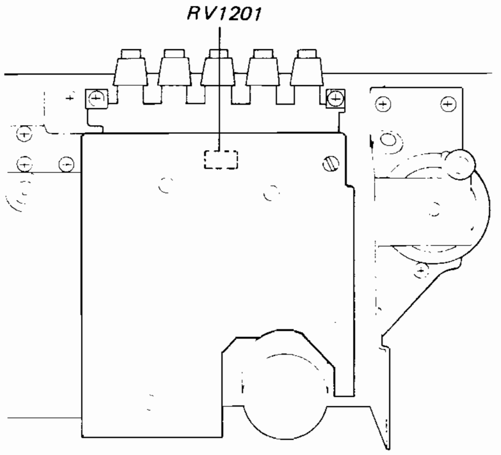

test tape
P-4-L81
(333 Hz, 0 dB)
set
record/playback board
VTVM
R-CH
switch
L-CH
YEL
(L-CH)
YEL/WHT
(R-CH)

1. *Measure the L-CH level.*
2. *Turn the switch to R-CH and adjust RV1201 to make the R-CH level as same as L-CH.*

Level difference between channels:
less than 0.5 dB

Adjustment Location:

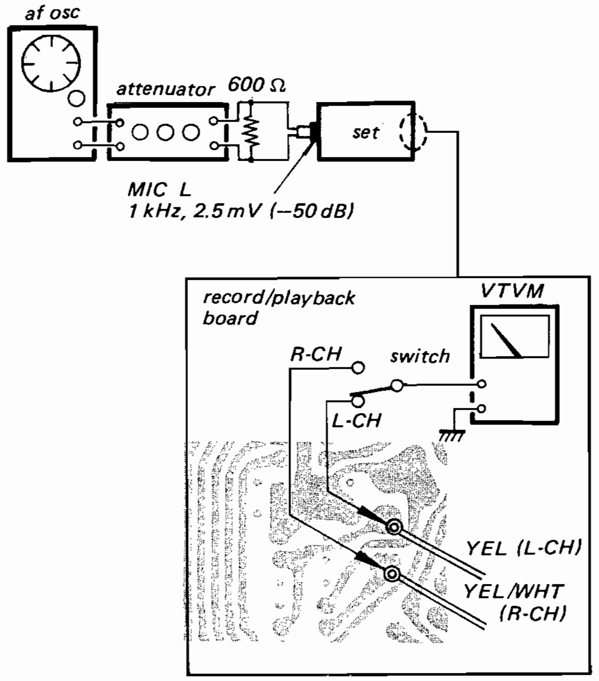
– record/playback board –



Record AGC Balance Adjustment

Procedure:

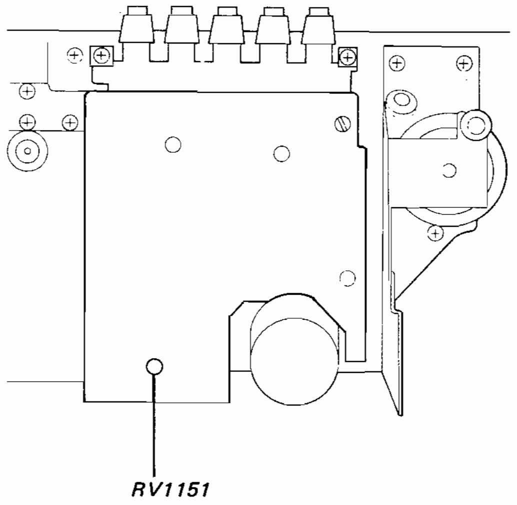
1. Mode: record


af osc
attenuator
600 Ω
set
MIC L
1 kHz, 2.5 mV (−50 dB)
record/playback board
VTVM
R-CH
switch
L-CH
YEL (L-CH)
YEL/WHT (R-CH)

2. Adjust RV1151 so that the VTVM readings of L-CH and R-CH become equal when the switch turned.

Adjustment Location:

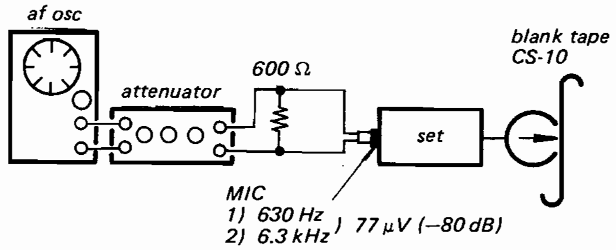
– record/playback board –



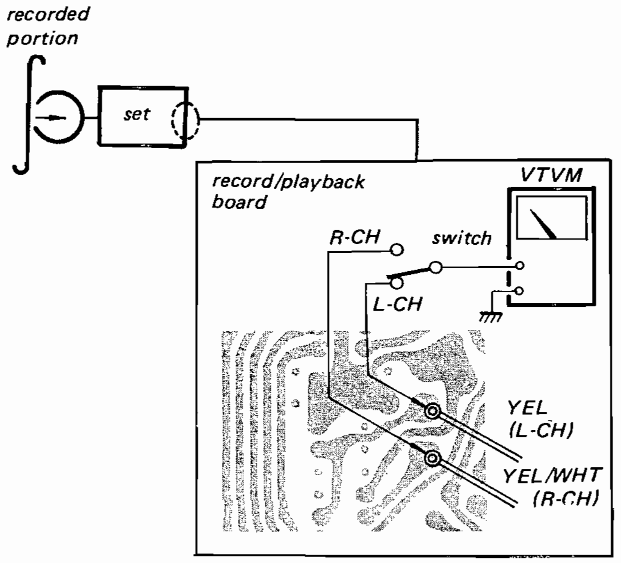
Record Bias Adjustment

Procedure:

1. Mode: record


af osc
attenuator
600 Ω
set
blank tape
CS-10
MIC
1) 630 Hz
2) 6.3 kHz
77 µV (−80 dB)

2. Mode: playback


recorded portion
set
record/playback board
VTVM
R-CH
switch
L-CH
YEL (L-CH)
YEL/WHT (R-CH)

Note the VTVM reading.

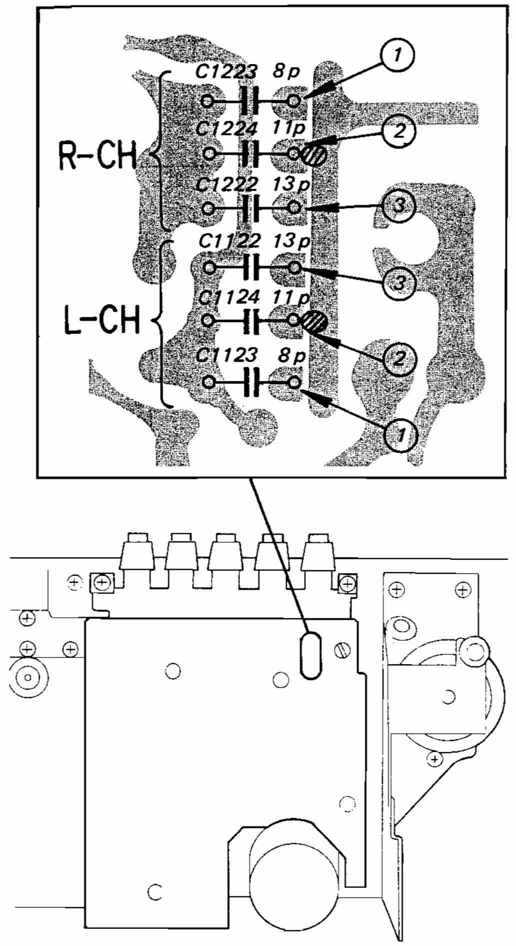
3. Repeating the above steps, adjust as follows:

Playback	Adjust pattern connection	VTVM reading
630 Hz 6.3 kHz	①, ②, ③	Level difference from 630 Hz should be 0 – −2 dB.

Pattern connection	6.3 kHz VTVM reading
①	up
②	↕
③	down

Adjustment Location:

– record/playback board –


C1223 8p
C1224 11p
C1222 13p
C1122 13p
C1124 11p
C1123 8p
R-CH
L-CH
①
②
③
③
②
①

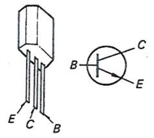
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM

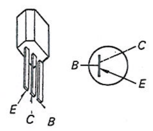
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

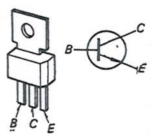
Q1101, 1102
Q1201, 1202 } : 2SC632A
Q1103 ～1105
Q1203 ～1205
Q1106, 1176 } : 2SC634A



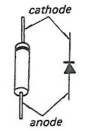
Q1177: 2SA678



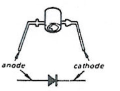
Q1178: 2SC1761



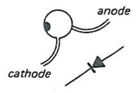
D1101, 1102
D1201, 1202 } : 1S1555


cathode
anode

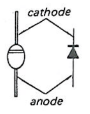
D1103: SEL103R

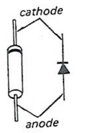

anode
cathode

D1176: VD1220


anode
cathode

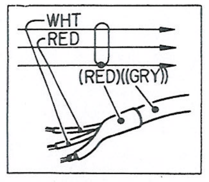
D1177: U05G (10E1)


cathode
anode


cathode
anode

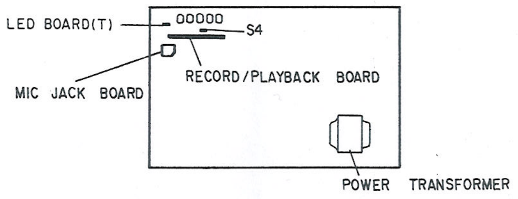
Note:

- Color code of sleeving over the end of the jacket.

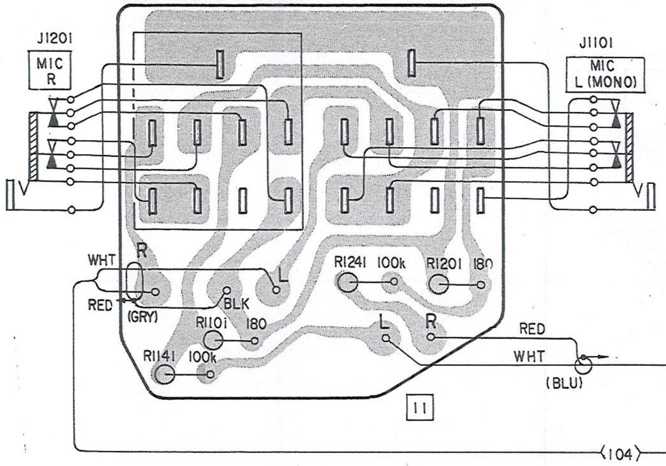

WHT
RED
(RED)(GRY)

- ▨ : B+ pattern
- – ➤ – : signal path { – – ➤ : L-CH; – · – ➤ : R-CH

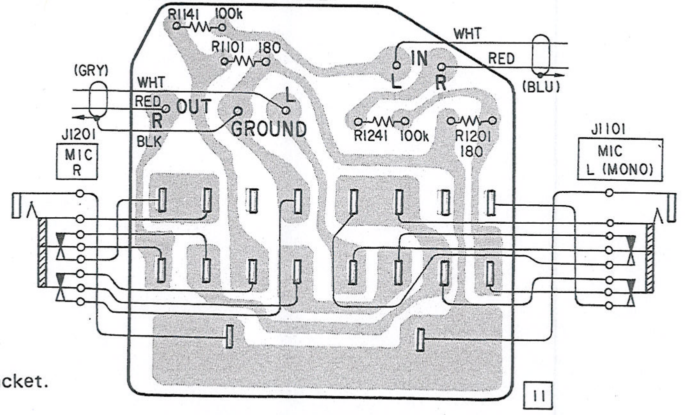
[CIRCUIT BOARD LOCATION]


LED BOARD(T)
S4
MIC JACK BOARD
RECORD/PLAYBACK BOARD
POWER TRANSFORMER

[MIC JACK BOARD]
(COMPONENT SIDE)

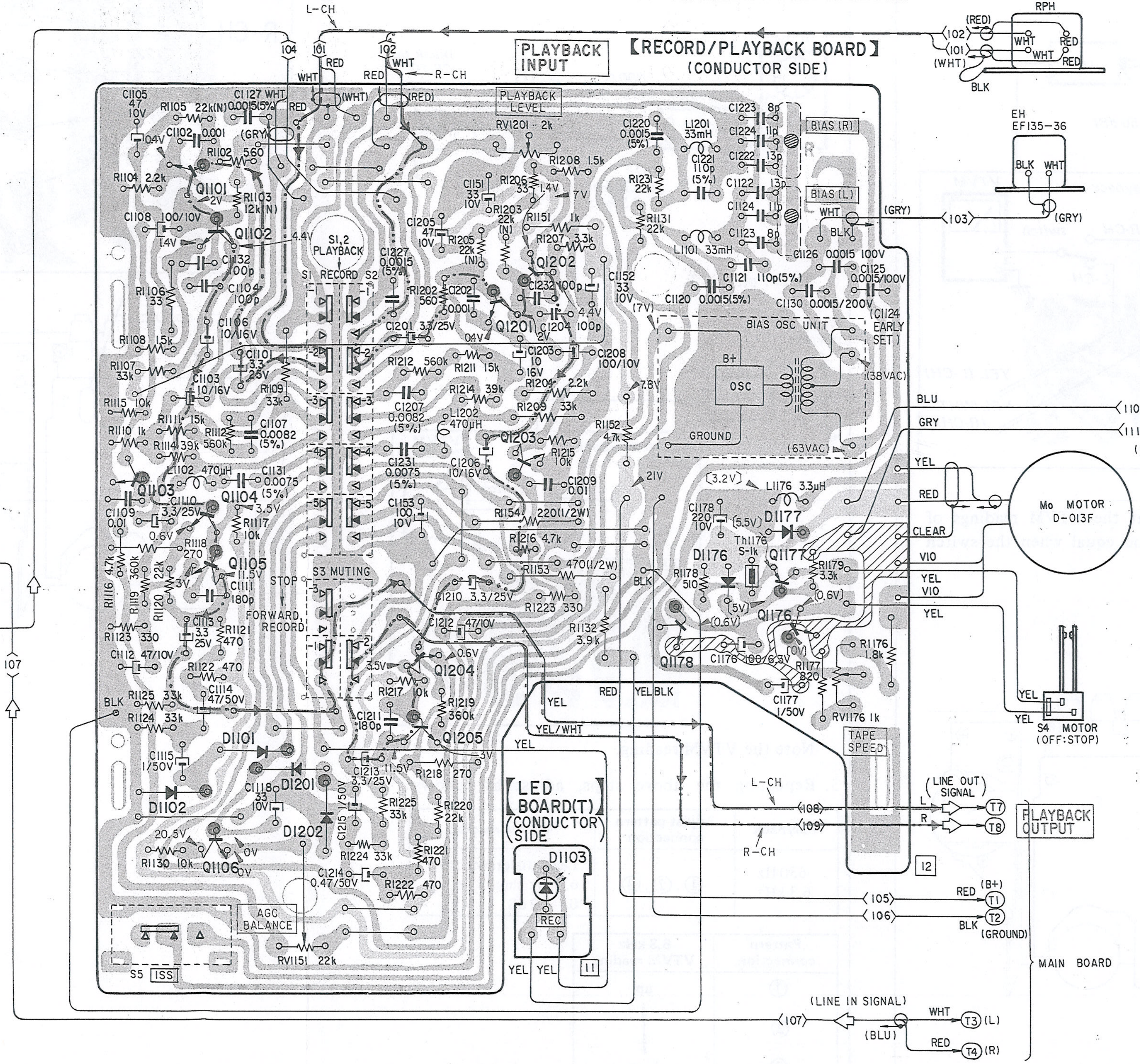

J1201
MIC R
J1101
MIC L (MONO)
R1241 100k
R1201 180
R1101 180
R1141 100k
WHT
RED
(GRY)
BLK
RED
WHT
(BLU)
L
R
11

[MIC JACK BOARD]
(CONDUCTOR SIDE)

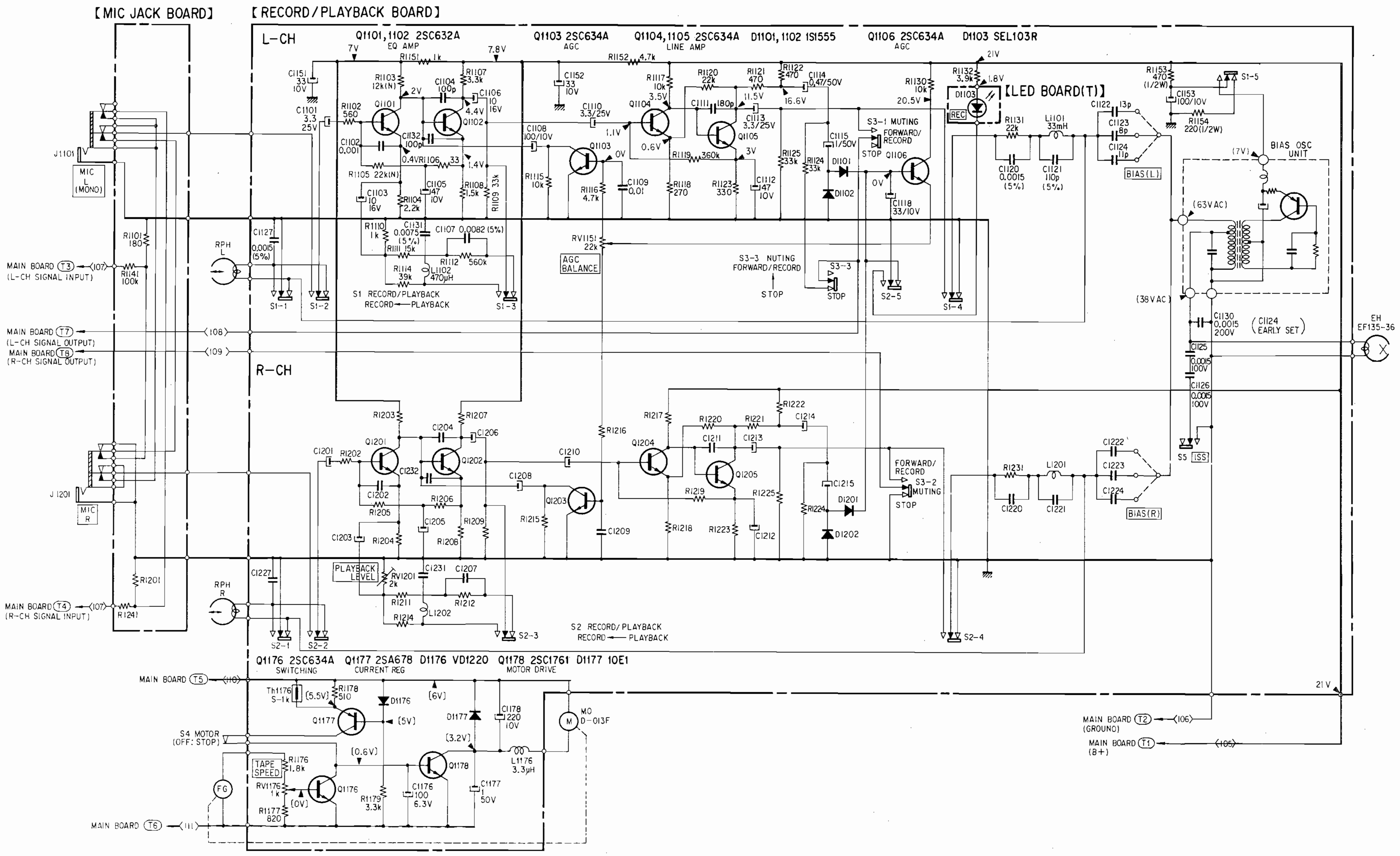

R1141 100k
R1101 180
WHT
RED
(BLU)
IN
OUT
GROUND
R1241 100k
R1201 180
(GRY)
WHT
RED
BLK
J1201
MIC R
J1101
MIC L (MONO)
11

- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).
  ( ): RECORD
  [ ]: FORWARD
- Voltages in [ ] are dc with respect to B – bus.

Q	1103	1101 1102 1104 1105 1106	1204 1205	1201 1202 1203	1178	1177 1176
D	1102	1101	1201 1202	1103	1177	1176


[RECORD/PLAYBACK BOARD]
(CONDUCTOR SIDE)
L-CH
R-CH
PLAYBACK INPUT
PLAYBACK LEVEL
RV1201 2k
BIAS (R)
BIAS (L)
BIAS OSC UNIT
OSC
B+
GROUND
(C1124 EARLY SET)
S1, 2 PLAYBACK
RECORD
S3 MUTING
STOP
FORWARD, RECORD
AGC BALANCE
RV1151 22k
S5 1SS
TAPE SPEED
RV1176 1k
[LED BOARD(T)]
(CONDUCTOR SIDE)
D1103
REC
11
12
RPH
EH EF135-36
Mo MOTOR D-013F
S4 MOTOR (OFF:STOP)
(MOTOR B+)
(MOTOR GROUND)
MAIN BOARD
(LINE OUT) SIGNAL
PLAYBACK OUTPUT
(LINE IN SIGNAL)
(B+)
(GROUND)
T1
T2
T3 (L)
T4 (R)
T5
T6
T7
T8
101
102
103
104
105
106
107
108
109
110
111
BLU
GRY
YEL
RED
CLEAR
VIO
BLK
WHT
YEL/WHT
Q1101
Q1102
Q1103
Q1104
Q1105
Q1106
Q1201
Q1202
Q1203
Q1204
Q1205
Q1176
Q1177
Q1178
D1101
D1102
D1201
D1202
D1176
D1177
Th1176
L1101 33mH
L1201 33mH
L1176 3.3μH

4-2. SCHEMATIC DIAGRAM


[MIC JACK BOARD]
[RECORD/PLAYBACK BOARD]
L-CH
R-CH
Q1101,1102 2SC632A EQ AMP
Q1103 2SC634A AGC
Q1104,1105 2SC634A LINE AMP
D1101,1102 1S1555
Q1106 2SC634A AGC
D1103 SEL103R
[LED BOARD(T)]
BIAS OSC UNIT
AGC BALANCE
PLAYBACK LEVEL
BIAS(L)
BIAS(R)
S1 RECORD/PLAYBACK RECORD ← PLAYBACK
S2 RECORD/PLAYBACK RECORD ← PLAYBACK
S3-1 MUTING FORWARD/RECORD STOP
S3-3 MUTING FORWARD/RECORD STOP
S3-2 MUTING FORWARD/RECORD STOP
S5 ISS
J1101 MIC L (MONO)
J1201 MIC R
RPH L
RPH R
MAIN BOARD (T3) (L-CH SIGNAL INPUT)
MAIN BOARD (T7) (L-CH SIGNAL OUTPUT)
MAIN BOARD (T8) (R-CH SIGNAL OUTPUT)
MAIN BOARD (T4) (R-CH SIGNAL INPUT)
MAIN BOARD (T5)
MAIN BOARD (T6)
MAIN BOARD (T2) (GROUND)
MAIN BOARD (T1) (B+)
EH EF135-36
(C1124 EARLY SET)
Q1176 2SC634A SWITCHING
Q1177 2SA678 CURRENT REG
D1176 VD1220
Q1178 2SC1761 MOTOR DRIVE
D1177 10E1
S4 MOTOR (OFF: STOP)
TAPE SPEED
FG
MO D-013F
21V

Note:

- All capacitors are in μF unless otherwise noted. pF = μμF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000 Ω, MΩ = 1000 kΩ
- (N) : low-noise capacitor and resistor.
- 5 % indicates component tolerance.
- ▬ : B+ bus.
- – – – : B– bus.
- ☐ : panel designation.
- ☐ : adjustment for repair.
- ⏚ : chassis ground.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (20 kΩ/V).

( ): RECORD
[ ]: FORWARD

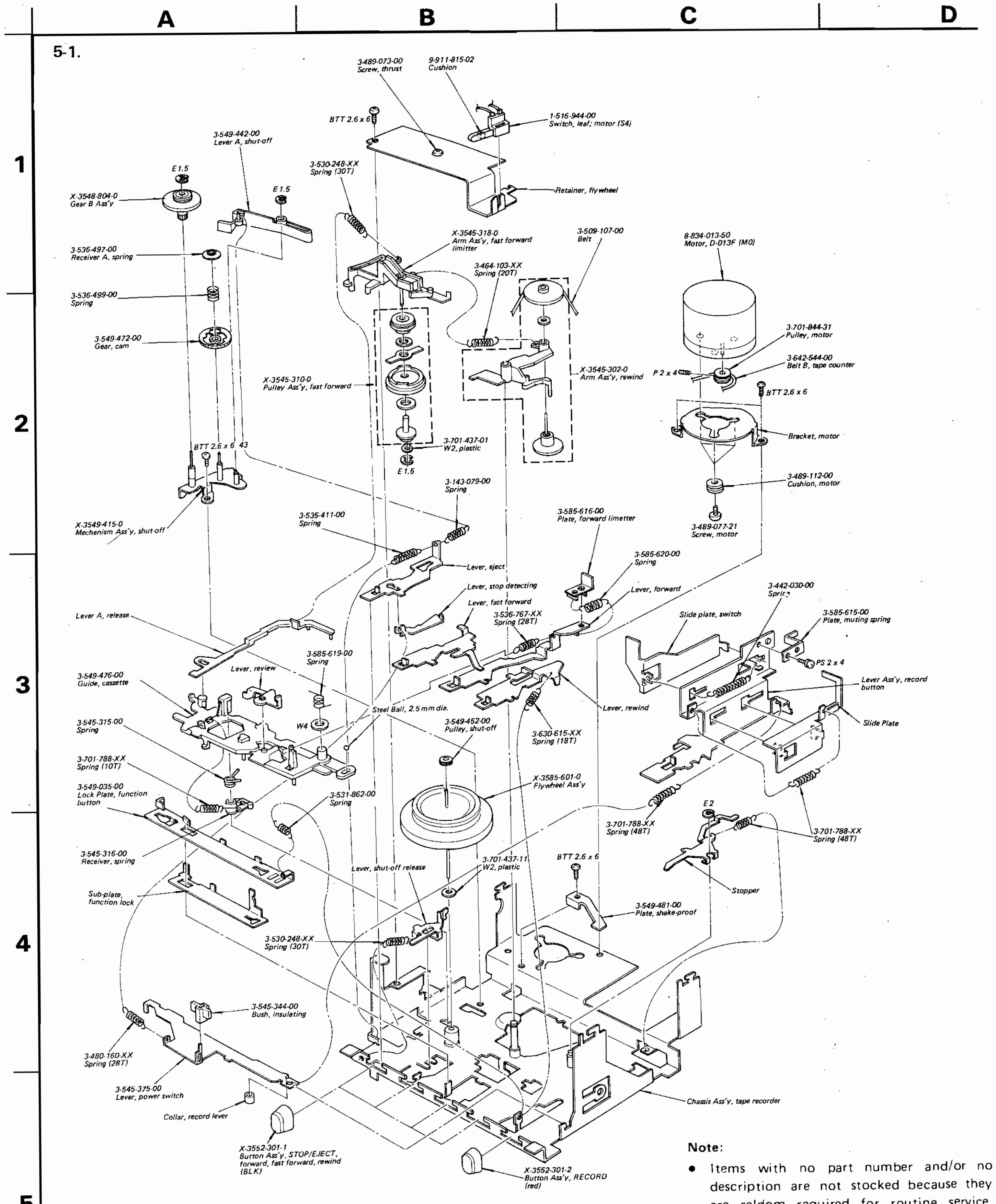
- Voltages in [ ] are dc with respect to B – bus.
- AC voltage readings in the bias oscillator circuit are taken with a VTVM.
- Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S1, 2	RECORD/PLAYBACK	PLAYBACK
S3	MUTING	STOP
S4	MOTOR	OFF
S5	ISS	

SECTION 5

EXPLODED VIEWS

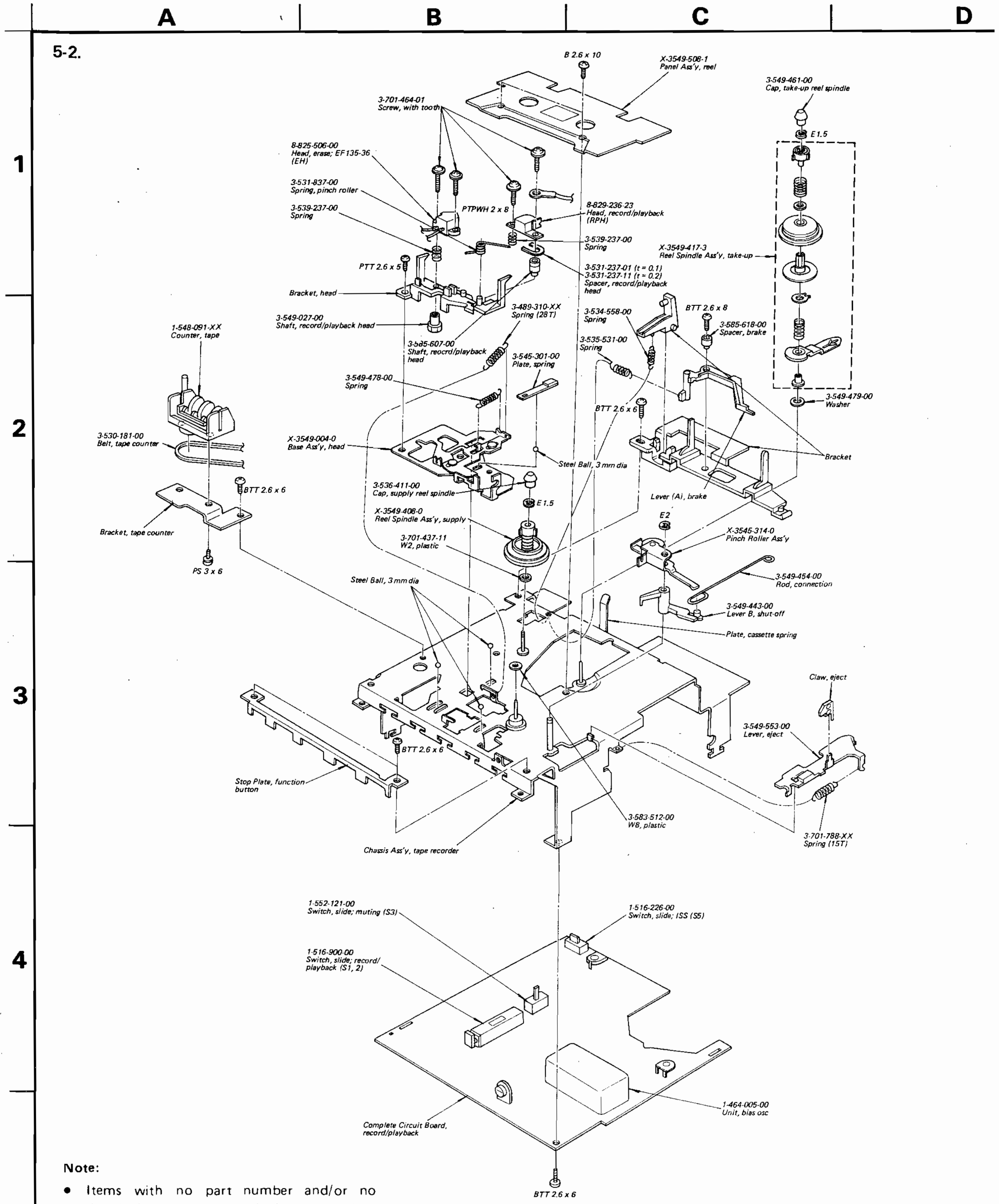
5-1.


A
B
C
D
1
2
3
4
5
3-489-073-00 Screw, thrust
9-911-815-02 Cushion
BTT 2.6 x 6
1-516-944-00 Switch, leaf; motor (S4)
3-549-442-00 Lever A, shut-off
3-530-248-XX Spring (30T)
Retainer, flywheel
E 1.5
X-3548-804-0 Gear B Ass'y
E 1.5
X-3545-318-0 Arm Ass'y, fast forward limitter
3-509-107-00 Belt
8-834-013-50 Motor, D-013F (M0)
3-536-497-00 Receiver A, spring
3-464-103-XX Spring (20T)
3-536-499-00 Spring
3-549-472-00 Gear, cam
3-701-844-31 Pulley, motor
3-642-544-00 Belt B, tape counter
X-3545-310-0 Pulley Ass'y, fast forward
X-3545-302-0 Arm Ass'y, rewind
P 2 x 4
BTT 2.6 x 6
BTT 2.6 x 6 43
Bracket, motor
3-701-437-01 W2, plastic
E 1.5
3-489-112-00 Cushion, motor
3-143-079-00 Spring
X-3549-415-0 Mechenism Ass'y, shut-off
3-535-411-00 Spring
3-585-616-00 Plate, forward limetter
3-489-077-21 Screw, motor
Lever, eject
3-585-620-00 Spring
Lever, stop detecting
Lever, forward
Lever, fast forward
3-442-030-00 Spring
3-536-767-XX Spring (28T)
Lever A, release
Slide plate, switch
3-585-615-00 Plate, muting spring
3-585-619-00 Spring
PS 2 x 4
Lever, review
3-549-476-00 Guide, cassette
Lever Ass'y, record button
Steel Ball, 2.5 mm dia.
Lever, rewind
3-549-452-00 Pulley, shut-off
3-545-315-00 Spring
W4
Slide Plate
3-630-615-XX Spring (18T)
3-701-788-XX Spring (10T)
X-3585-601-0 Flywheel Ass'y
3-549-035-00 Lock Plate, function button
3-531-862-00 Spring
E2
3-701-788-XX Spring (48T)
3-701-788-XX Spring (48T)
3-545-316-00 Receiver, spring
Lever, shut-off release
3-701-437-11 W2, plastic
BTT 2.6 x 6
Stopper
Sub-plate, function lock
3-549-481-00 Plate, shake-proof
3-530-248-XX Spring (30T)
3-545-344-00 Bush, insulating
3-480-160-XX Spring (28T)
3-545-375-00 Lever, power switch
Collar, record lever
Chassis Ass'y, tape recorder
X-3552-301-1 Button Ass'y, STOP/EJECT, forward, fast forward, rewind (BLK)
X-3552-301-2 Button Ass'y, RECORD (red)

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- (□□T) shows the number of coils in spring.

5-2.


A
B
C
D
1
2
3
4
5
B 2.6 x 10
X-3549-508-1 Panel Ass'y, reel
3-549-461-00 Cap, take-up reel spindle
3-701-464-01 Screw, with tooth
E 1.5
8-825-506-00 Head, erase; EF135-36 (EH)
3-531-837-00 Spring, pinch roller
3-539-237-00 Spring
PTPWH 2 x 8
8-829-236-23 Head, record/playback (RPH)
3-539-237-00 Spring
X-3549-417-3 Reel Spindle Ass'y, take-up
PTT 2.6 x 5
3-531-237-01 (t = 0.1)
3-531-237-11 (t = 0.2)
Spacer, record/playback head
Bracket, head
3-489-310-XX Spring (28T)
3-534-558-00 Spring
BTT 2.6 x 8
3-585-618-00 Spacer, brake
3-549-027-00 Shaft, record/playback head
1-548-091-XX Counter, tape
3-585-607-00 Shaft, reocrd/playback head
3-545-301-00 Plate, spring
3-535-531-00 Spring
3-549-478-00 Spring
3-549-479-00 Washer
BTT 2.6 x 6
3-530-181-00 Belt, tape counter
X-3549-004-0 Base Ass'y, head
Steel Ball, 3 mm dia
Bracket
BTT 2.6 x 6
3-536-411-00 Cap, supply reel spindle
E 1.5
Lever (A), brake
X-3549-408-0 Reel Spindle Ass'y, supply
E2
Bracket, tape counter
3-701-437-11 W2, plastic
X-3545-314-0 Pinch Roller Ass'y
PS 3 x 6
3-549-454-00 Rod, connection
Steel Ball, 3 mm dia
3-549-443-00 Lever B, shut-off
Plate, cassette spring
Claw, eject
3-549-553-00 Lever, eject
BTT 2.6 x 6
Stop Plate, function button
3-583-512-00 W8, plastic
3-701-788-XX Spring (15T)
Chassis Ass'y, tape recorder
1-552-121-00 Switch, slide; muting (S3)
1-516-226-00 Switch, slide; ISS (S5)
1-516-900-00 Switch, slide; record/playback (S1, 2)
1-464-005-00 Unit, bias osc
Complete Circuit Board, record/playback
BTT 2.6 x 6

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- (□□T) shows the number of coils in spring.

SECTION 6

ELECTRICAL PARTS LIST

(2) Tape Recorder Section

SEMICONDUCTORS

Transistors

Ref. No.	*Part No.*	*Description*
Q1001, 1201 Q1102, 1202)		2SC632A
Q1103 ~1106 Q1203 ~1205)		2SC634A
Q1176		
Q1177		2SA678
Q1178		2SC1761

Diodes

Ref. No.	*Part No.*	*Description*
D1101, 1201 D1102, 1202)		1S1555
D1103		SEL103R
D1176		VD1220
⇒D1177		U05G
Th1176	1-800-198-XX	Thermistor S-1K

COILS

Ref. No.	*Part No.*	*Description*
L1101, 1201	1-407-212-XX	33 mH, microinductor
L1102, 1202	1-407-661-XX	470 μH, microinductor
L1176	1-407-184-XX	3.3 μH, microinductor

CAPACITORS

All capacitors are in μF and electrolytic unless otherwise noted. 50 WV or less are not indicated except for electrolytics.
pF = μμF

Ref. No.	*Part No.*	*Description*		
C1101,1201	1-121-392-11	3.3	25 V	
C1102,1202	1-101-918-11	0.001		ceramic
C1103,1203	1-121-651-11	10	16 V	
C1104,1204	1-101-881-11	47 p		ceramic
C1105,1205	1-121-352-11	47	10 V	
C1106,1206	1-121-651-11	10	16 V	
C1107,1207	1-108-577-11	0.0082		mylar
C1108,1208	1-121-414-11	100	10 V	
C1109,1209	1-101-923-11	0.01		ceramic
C1110,1210	1-121-913-11	3.3	25 V	
C1111,1211	1-102-976-11	180 p		ceramic
C1112,1212	1-121-352-11	47	10 V	
C1113,1213	1-121-392-11	3.3	25 V	
C1114,1214	1-121-726-11	0.47	50 V	
C1115,1215	1-121-391-11	1	50 V	
C1118	1-121-402-11	33	10 V	
C1120,1220	1-108-559-11	0.0015		mylar (5%)
C1121,1221	1-102-815-11	110 p		ceramic (5%)
C1122,1222	1-102-950-11	13 p		ceramic (5%)
C1123,1223	1-102-945-11	8 p		ceramic (5%)
C1124,1224	1-102-948-11	11 p		ceramic (5%)
C1125,1126	1-108-367-12	0.0015	100 V	mylar
C1127,1227	1-108-559-11	0.0015		mylar (5%)
C1130	1-108-411-12	0.0015	200 V	mylar
C1131,1231	1-108-576-11	0.0075		mylar (5%)
C1151,1152	1-121-402-11	33	10 V	
C1153	1-121-414-11	100	10 V	
C1176	1-121-413-11	100	6.3 V	
C1177	1-121-391-11	1	50 V	
C1178	1-121-420-11	220	10 V	

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for values.

Ref. No.	*Part No.*	*Description*		
R1153	1-202-565-11	470	½W	composition
R1154	1-202-557-11	220	½W	composition
RV1151	1-224-646-XX	22 k, adjustable		
RV1176	1-224-642-XX	1 k, adjustable		
RV1201	1-224-643-XX	2 k, adjustable		

SWITCHES

Ref. No.	*Part No.*	*Description*
S1, 2	1-516-900-00	Slide, record/playback
S3	1-552-121-00	Slide, muting
S4	1-516-944-00	Leaf, motor
S5	1-516-226-00	Slide, ISS

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No.	*Part No.*	*Description*
		MISCELLANEOUS
EH	8-825-506-00	Head, erase; EF135-36
J1101,1201	1-507-501-00	Jack, MIC
MO	8-834-013-50	Motor, D-013F
RPH	8-829-236-23	Head, record/playback
	1-464-005-00	Unit, bias osc

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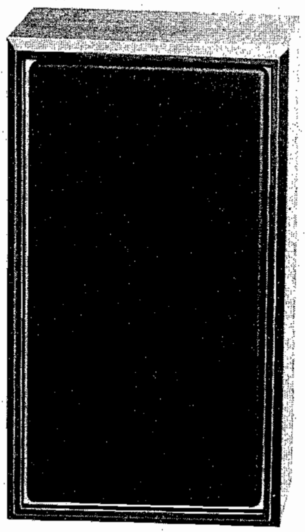
7D0510-1
Printed in Japan

9-958-374-01
(with BSR C-129R2
and SS-410)

SS-410



SPEAKER SYSTEM

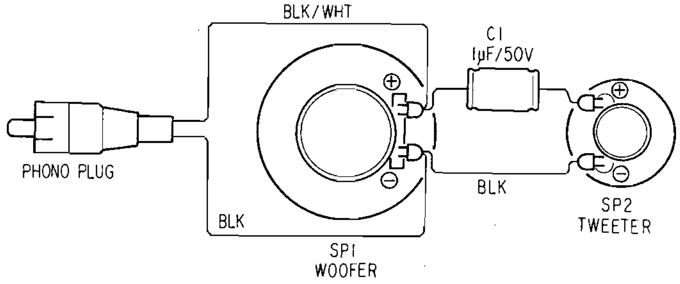
SPECIFICATIONS

Speaker System:	Two-way Woofer 16 cm ($6\frac{1}{2}$ inches), cone type Tweeter 5 cm (2 inches), cone type
Impedance:	8 Ω
Dimensions:	Approx. 280 (w) x 500 (h) x 160 (d) mm $11\frac{1}{8}$ (w) x $19\frac{3}{4}$ (h) x $6\frac{3}{8}$ (d) inches
Weight:	Approx. 5 kg, 11 lb 1 oz, per speaker (net) 11 kg, 24 lb 4 oz, pair (with shipping carton)

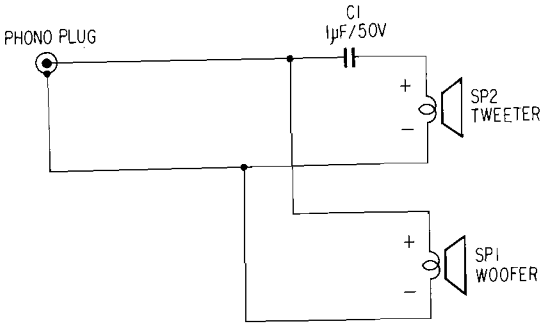
SONY®

SERVICE MANUAL

1. WIRING DIAGRAM


BLK/WHT
C1
1μF/50V
⊕
⊖
PHONO PLUG
BLK
BLK
SP2
TWEETER
SP1
WOOFER

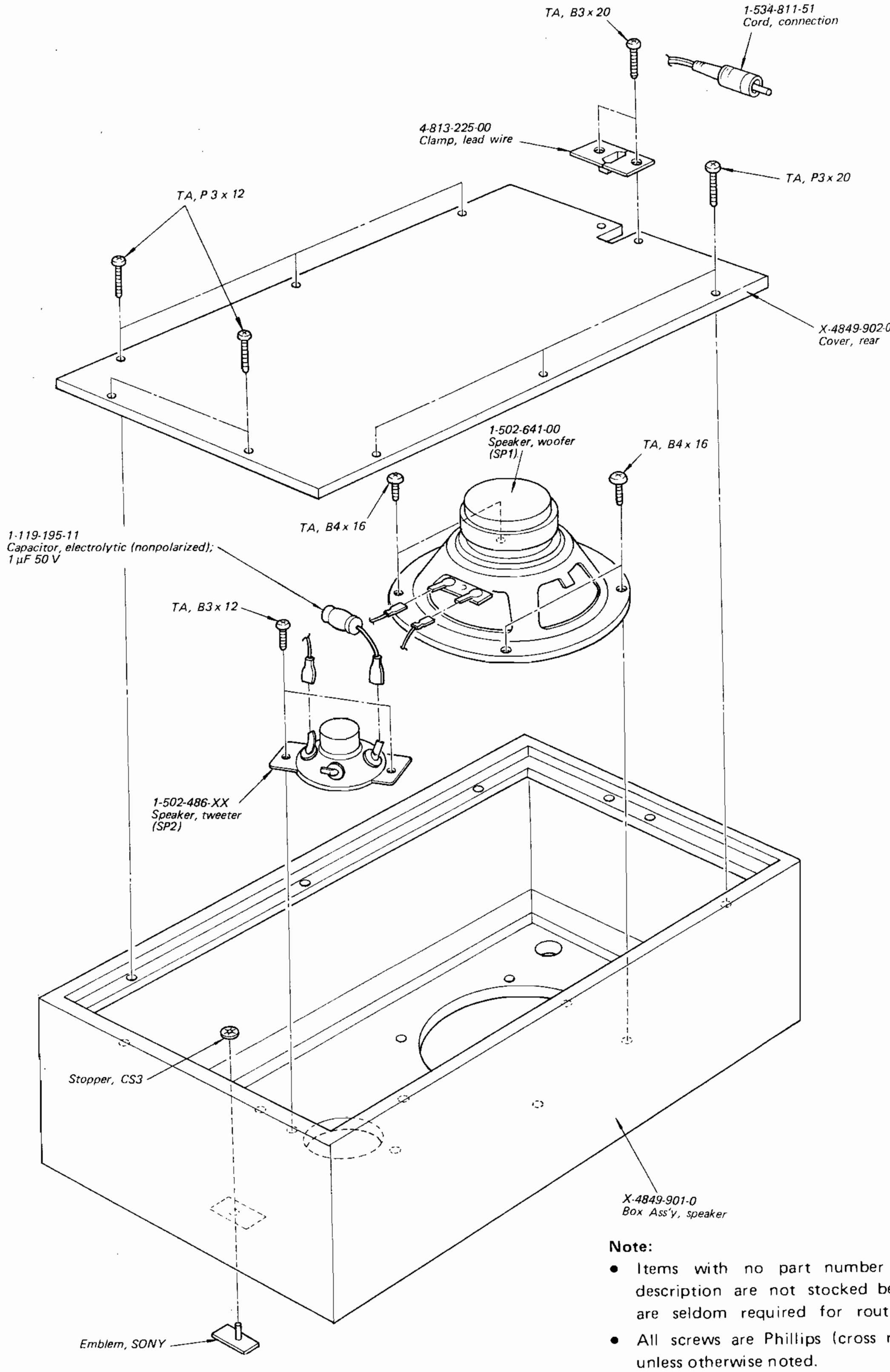
2. SCHEMATIC DIAGRAM


PHONO PLUG
C1
1μF/50V
+
−
SP2
TWEETER
+
−
SP1
WOOFER

3. PACKING MATERIALS

Part No.	*Description*
4-849-908-00	Cushion
4-849-909-00	Bag, plastic; set
4-849-910-00	Spacer
4-850-707-00	Carton

EXPLODED VIEW


A
B
C
D
1
2
3
4
TA, B3 x 20
1-534-811-51
Cord, connection
4-813-225-00
Clamp, lead wire
TA, P3 x 20
TA, P 3 x 12
X-4849-902-0
Cover, rear
1-502-641-00
Speaker, woofer
(SP1)
TA, B4 x 16
TA, B4 x 16
1-119-195-11
Capacitor, electrolytic (nonpolarized);
1 μF 50 V
TA, B3 x 12
1-502-486-XX
Speaker, tweeter
(SP2)
Stopper, CS3
X-4849-901-0
Box Ass'y, speaker
Emblem, SONY

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

9-958-384-01

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Printed in Japan

STEREO MUSIC SYSTEM HMK-419

E Model

CORRECTION

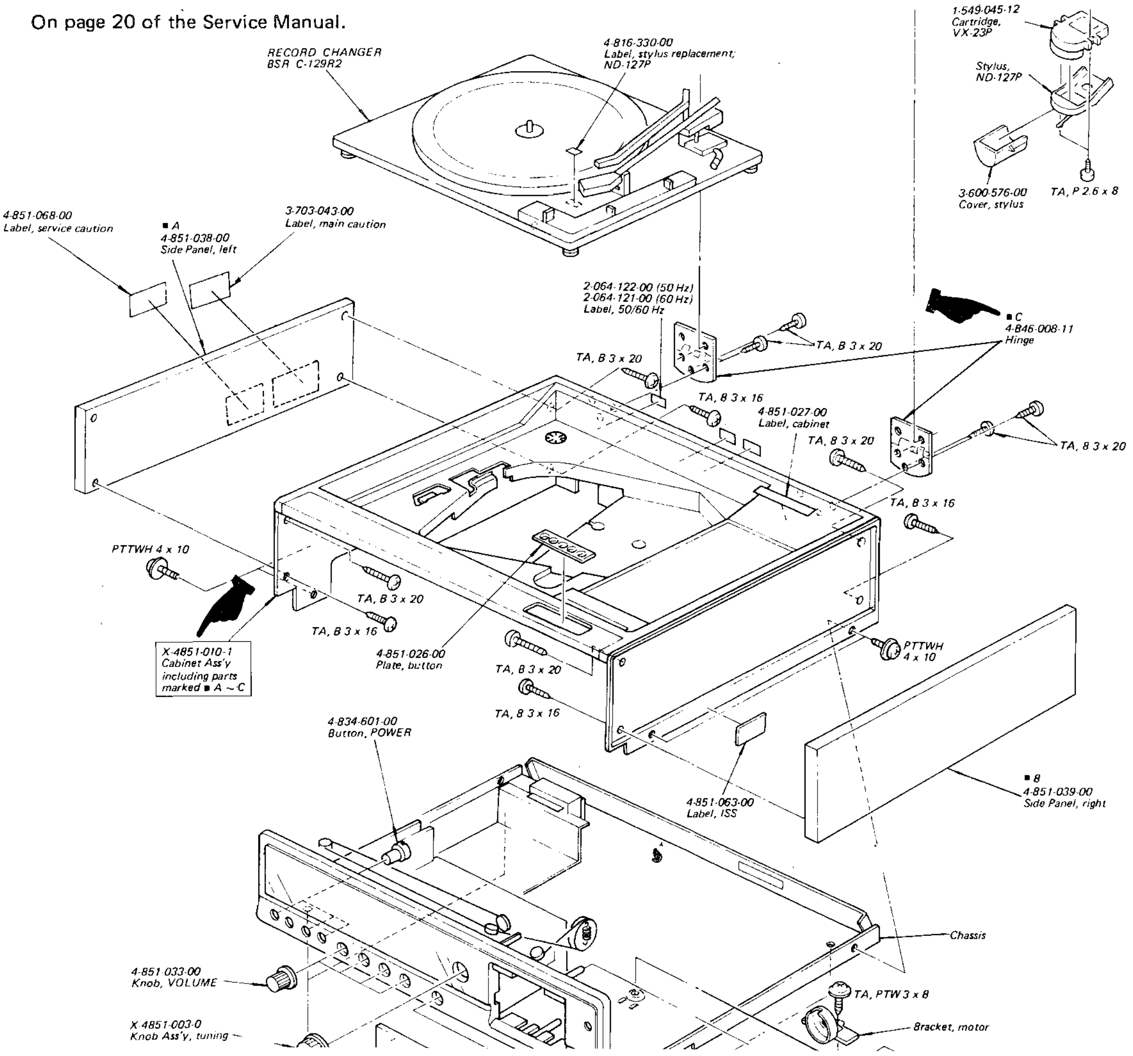
No. 1
June, 1977

File this Correction with the Service Manual.

CORRECT		INCORRECT	
PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
X-4851-010-1	Cabinet Ass'y including parts marked ■ A~C	X-4851-005-1	Cabinet Ass'y including parts marked ■ A~B

☛ : corrected portion

On page 20 of the Service Manual.


RECORD CHANGER
BSR C-129R2
4-816-330-00
Label, stylus replacement;
ND-127P
1-549-045-12
Cartridge,
VX-23P
Stylus,
ND-127P
3-600-576-00
Cover, stylus
TA, P 2.6 x 8
4-851-068-00
Label, service caution
■ A
4-851-038-00
Side Panel, left
3-703-043-00
Label, main caution
2-064-122-00 (50 Hz)
2-064-121-00 (60 Hz)
Label, 50/60 Hz
TA, B 3 x 20
TA, B 3 x 20
■ C
4-846-008-11
Hinge
TA, B 3 x 16
4-851-027-00
Label, cabinet
TA, B 3 x 20
TA, B 3 x 20
TA, B 3 x 16
PTTWH 4 x 10
TA, B 3 x 20
TA, B 3 x 16
X-4851-010-1
Cabinet Ass'y
including parts
marked ■ A ~ C
4-851-026-00
Plate, button
TA, B 3 x 20
TA, B 3 x 16
PTTWH
4 x 10
4-834-601-00
Button, POWER
■ B
4-851-039-00
Side Panel, right
4-851-063-00
Label, ISS
Chassis
4-851-033-00
Knob, VOLUME
TA, PTW 3 x 8
X 4851-003-0
Knob Ass'y, tuning
Bracket, motor

SONY®
SERVICE MANUAL

9-958-374-91

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Printed in Japan

STEREO MUSIC SYSTEM

HMK-419

E Model
US Model
Canadian Model

CORRECTION

No. 1
September, 1977

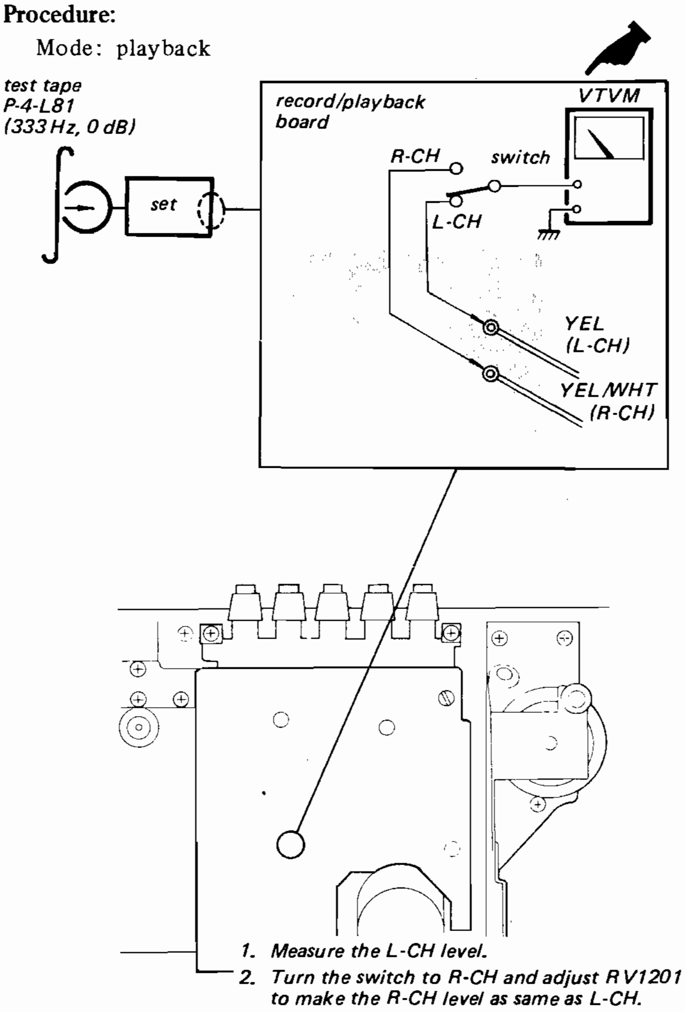
Correct the service manual as shown below.

☛ : corrected portion

Page 36: Playback Level Adjustment

Procedure:

Mode: playback


test tape
P-4-L81
(333 Hz, 0 dB)
set
record/playback board
VTVM
R-CH
switch
L-CH
YEL (L-CH)
YEL/WHT (R-CH)

1. *Measure the L-CH level.*
2. *Turn the switch to R-CH and adjust RV1201 to make the R-CH level as same as L-CH.*

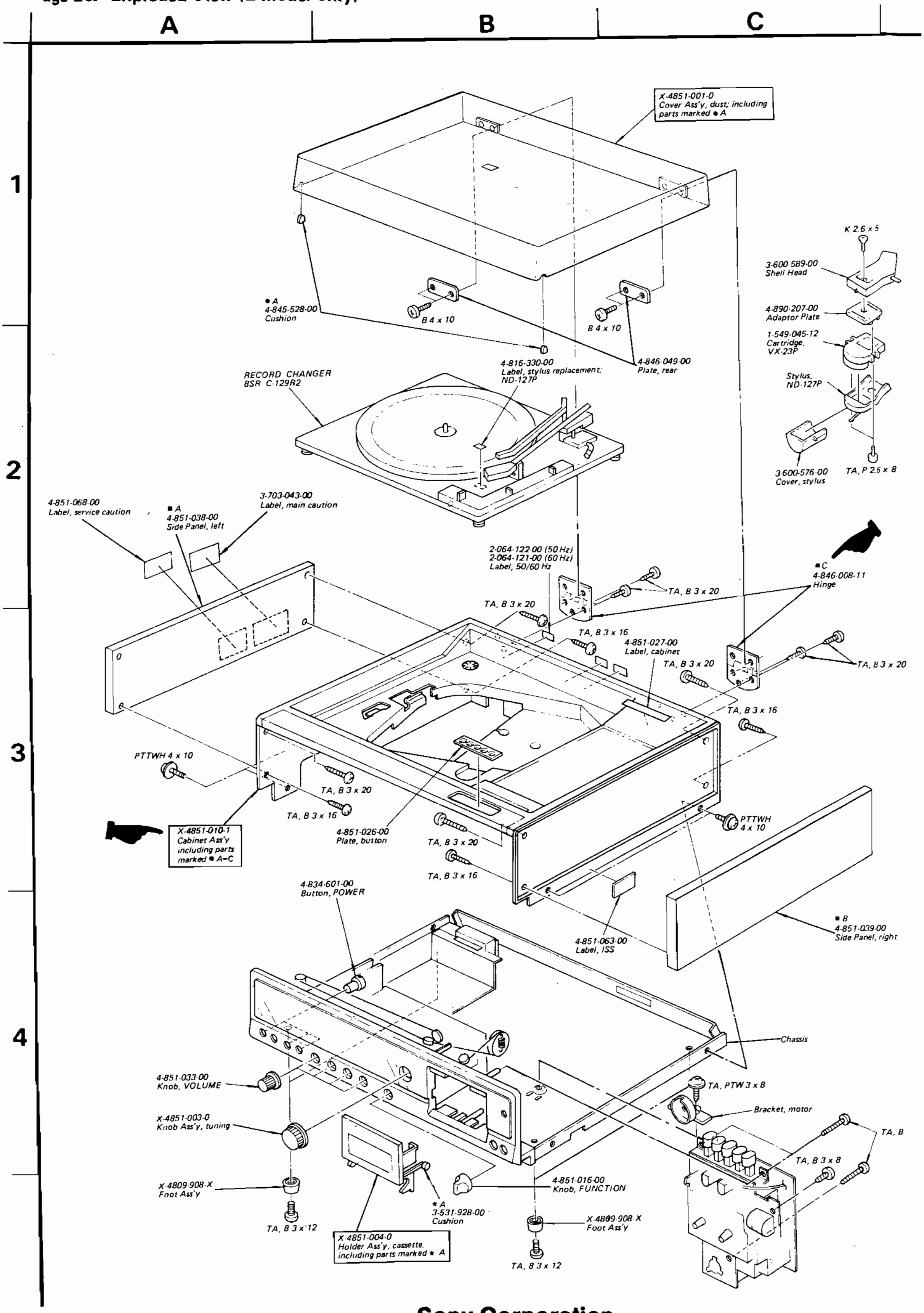
SONY®
SERVICE MANUAL

HMK-419

Correction No. 1

☛ : corrected portion

Page 20: Exploded View (E model only)


A
B
C
1
2
3
4
X-4851-001-0 Cover Ass'y, dust; including parts marked ● A
K 2.6 x 5
3-600-589-00 Shell Head
4-890-207-00 Adaptor Plate
1-549-045-12 Cartridge, VX-23P
Stylus, ND-127P
3-600-576-00 Cover, stylus
TA, P 2.6 x 8
● A 4-845-528-00 Cushion
B 4 x 10
B 4 x 10
4-846-049-00 Plate, rear
4-816-330-00 Label, stylus replacement; ND-127P
RECORD CHANGER BSR C-129R2
4-851-068-00 Label, service caution
■ A 4-851-038-00 Side Panel, left
3-703-043-00 Label, main caution
2-064-122-00 (50 Hz) 2-064-121-00 (60 Hz) Label, 50/60 Hz
TA, B 3 x 20
■ C 4-846-008-11 Hinge
TA, B 3 x 20
TA, B 3 x 16
4-851-027-00 Label, cabinet
TA, B 3 x 20
TA, B 3 x 20
TA, B 3 x 16
PTTWH 4 x 10
TA, B 3 x 20
TA, B 3 x 16
X-4851-010-1 Cabinet Ass'y including parts marked ■ A~C
4-851-026-00 Plate, button
TA, B 3 x 20
TA, B 3 x 16
PTTWH 4 x 10
4-834-601-00 Button, POWER
■ B 4-851-039-00 Side Panel, right
4-851-063-00 Label, ISS
Chassis
4-851-033-00 Knob, VOLUME
X-4851-003-0 Knob Ass'y, tuning
TA, PTW 3 x 8
Bracket, motor
TA, B
TA, B 3 x 8
X-4809-908-X Foot Ass'y
TA, B 3 x 12
★ A 3-531-928-00 Cushion
X-4851-004-0 Holder Ass'y, cassette, including parts marked ★ A
4-851-016-00 Knob, FUNCTION
X-4809-908-X Foot Ass'y
TA, B 3 x 12

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9-958-374-91

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Pri

EREO MUSIC SYSTEM HMK-419

E Model

CORRECTION

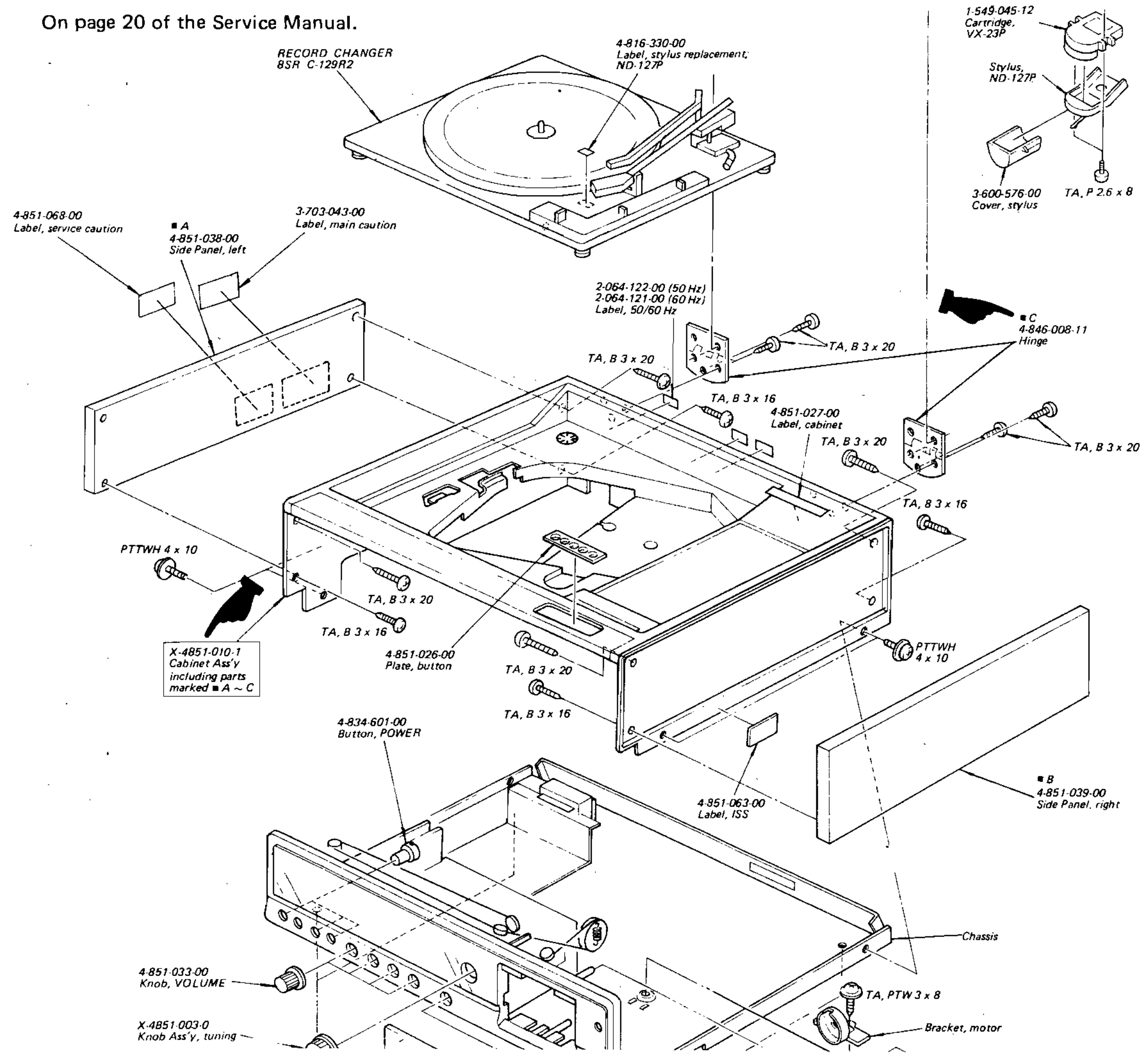
No. 1
June, 1977

File this Correction with the Service Manual.

CORRECT		INCORRECT	
PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
X-4851-010-1	Cabinet Ass'y including parts marked ■ A～C	X-4851-005-1	Cabinet Ass'y including parts marked ■ A～B

☛ : corrected portion

On page 20 of the Service Manual.


RECORD CHANGER
BSR C-129R2
4-816-330-00
Label, stylus replacement;
ND-127P
1-549-045-12
Cartridge,
VX-23P
Stylus,
ND-127P
3-600-576-00
Cover, stylus
TA, P 2.6 x 8
4-851-068-00
Label, service caution
■ A
4-851-038-00
Side Panel, left
3-703-043-00
Label, main caution
2-064-122-00 (50 Hz)
2-064-121-00 (60 Hz)
Label, 50/60 Hz
■ C
4-846-008-11
Hinge
TA, B 3 x 20
TA, B 3 x 20
TA, B 3 x 16
4-851-027-00
Label, cabinet
TA, B 3 x 20
TA, B 3 x 20
TA, B 3 x 16
PTTWH 4 x 10
TA, B 3 x 20
TA, B 3 x 16
X-4851-010-1
Cabinet Ass'y
including parts
marked ■ A ~ C
4-851-026-00
Plate, button
TA, B 3 x 20
TA, B 3 x 16
PTTWH
4 x 10
4-834-601-00
Button, POWER
4-851-063-00
Label, ISS
■ B
4-851-039-00
Side Panel, right
Chassis
4-851-033-00
Knob, VOLUME
TA, PTW 3 x 8
X-4851-003-0
Knob Ass'y, tuning
Bracket, motor

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SERVICE MANUAL

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9-958-374-91

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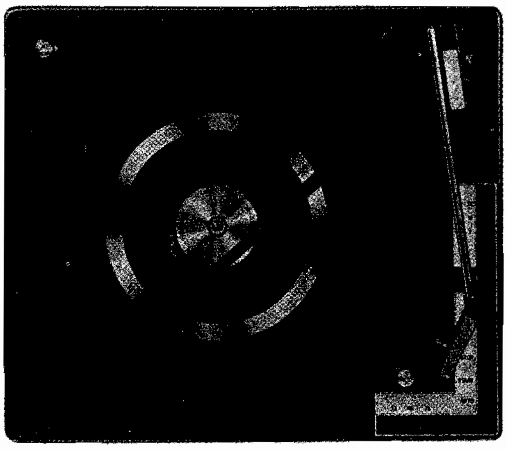
S1

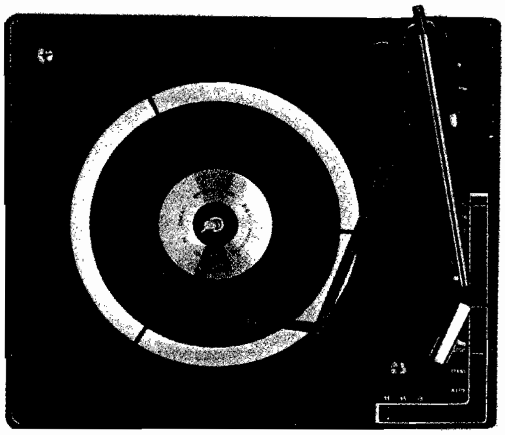
BSR C-123R
BSR C-123R2
BSR C-129R2

gehört zu HMK-419

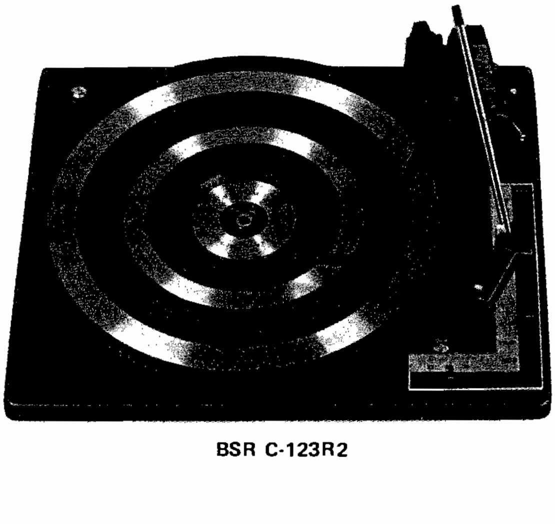
RECORD CHANGER



BSR C-123R



BSR C-129R2



BSR C-123R2

SONY®

SERVICE MANUAL

SPECIFICATIONS

Record changer:	Three speeds (33⅓, 45, 78 rpm)
Drive system:	Idler-drive
Number of records played automatically:	Up to 5 LP records

TABLE OF CONTENTS

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   - 1-2. Automatic Operation 3
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   - 2-2. Pick-up Arm Anti-skating (C-123R, C-123R2) 5
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SECTION 1
OPERATING INSTRUCTIONS

The BSR C-123R, C-123R2, C-129R2 will play automatically a stack of up to five (depending on thickness) 7" (17 cm), 10" (25 cm) or 12" (30 cm) diameter records of the same speed. 7" (17 cm) diameter records having a large center hole may be played using a BSR 45 rpm spindle adaptor.

1-1. INITIAL PREPARATION

(1) Check that the two transit screws are fully screwed down to the mainplate and that the unit floats freely on the mounting springs.

(2) Rotate the turntable by hand, five times to ensure that the mechanism is in neutral position.

(3) If the center spindle is not already fitted, place it into the turntable bearing, ensuring that the projection on the spindle locates in the slot at the top of the turntable bearing. Press downwards until the spindle snaps onto the circlip.

Note: The pick-up arm is automatically released when the starting lever is operated.

1-2. AUTOMATIC OPERATION

(1) According to the type of record to be played,
  (a) Move the speed control (Fig. 1, A) against the required speed.
  (b) Set record size selector (Fig. 1, B).

(2) To Load
Lift the control arm at the rear and swing it to the right. Carefully place one record on the ledge of the center spindle and hold there while the remaining stack of up to five records are also loaded.
All records in any one stack must be of the same speed, diameter. Swing the control arm back to the center and gently lower onto the records.

(3) To Start
Move the starting lever (Fig. 1, C) to the AUTO position and hold there momentarily until the turntable revolves, then return it gently to the START position.

(4) To Reject
To reject a record at any time when the unit is in operation, move the starting lever to the AUTO position and then return it gently to the START position.

(5) To Stop
After playing the last record the unit will shut off automatically. If it becomes necessary to stop the unit during play, raise the cueing lever (Fig. 2) and move the pick-up arm on the pick-up arm rest (Fig. 1, D) lower the cueing lever and move the starting lever to the STOP position.

Note: To manually interrupt the record, raise the cueing lever to lift the pick-up arm. When the cueing lever is lowered, the pick-up will descent to the record and resume playing in the same groove.

1-3. MANUAL OPERATION

(1) Check all settings as indicated in (1) (a) and (b) under Automatic Operation.

(2) Where a stub spindle is provided, remove center spindle assembly by lifting and twisting and replace with the shorter spindle.

Note: Records may be played with the long spindle fixed, but the record must be manipulated carefully over the spindle ledge.

(3) Lift the control arm at the rear and swing to the right. Place the record on the turntable.

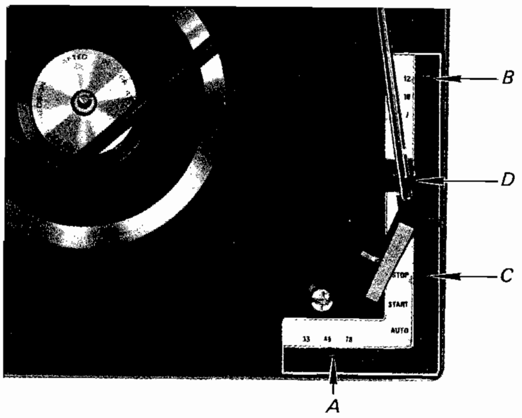


Fig. 1. Control panel with automatic pick-up lock

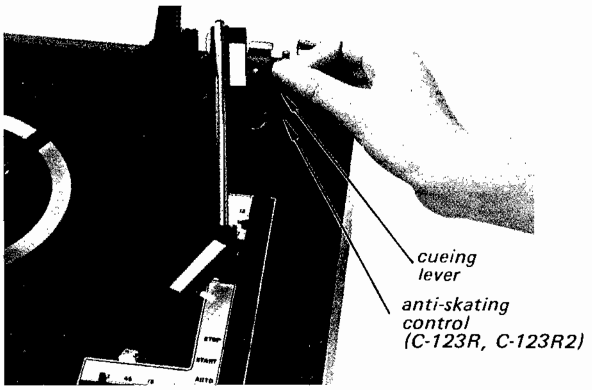


Fig. 2. Cueing lever and anti-skating control

(4) To Start
Move the starting lever to the START position and raise the cueing lever. Move the pick-up arm above the record to the desired point and lower to the groove by returning the cueing lever to the lower position.
At the end of the record the pick-up arm will return to the pick-up arm rest and the unit will shut off automatically.

(5) To Reject or Stop
The procedure for stopping or rejecting a record while playing is as described in paragraphs (4) and (5) under Automatic Operation.

Note: (a) Single records may be played semi-automatically by leaving the control arm in the raised position at the right then moving the starting lever to the AUTO position, returning it gently to the START position. The pick-up will automatically set down on the record. If the control arm is left in the raised position the record will continue to play repeatedly. The unit will shut off and the pick-up returns to its rest only if the control arm is lowered after the stylus has set down on the record.

(b) Records which do not have a starting or fast finishing groove must be played manually.

Important:

(1) Always remember to use the correct stylus on the pick-up. If the wrong one is in use it may not be apparent from the music, however, the stylus itself may become damaged by continuous playing on the wrong point.

(2) Never force the pick-up arm. This unit is robust but due to the featherweight action of the pick-up and the delicate balance required, any force will upset the adjustment.

(3) When playing new records a certain amount of fluff will gather on the stylus point. This should be carefully removed from time to time.

(4) Do not leave records on the unit when not in use; store as recommended by the manufactures.

(5) If the unit is to be moved the transit screws should be raised to secure the unit to the turntable base by turning them counterclockwise.

SECTION 2
ADJUSTMENTS

Note: This unit has been subjected to the most rigorous checks and tests before leaving the factory where all necessary adjustments have been made to ensure the satisfactory playing of records.
The following information is provided, should it become necessary to make any minor adjustments.

2-1. STYLUS PRESSURE

The stylus pressure should always be set as recommended by the cartridge manufacturer. The stylus pressure is adjusted by means of the stylus pressure adjustment screw (Fig. 3).

Turning clockwise reduces the stylus pressure, counterclockwise increases the pressure.

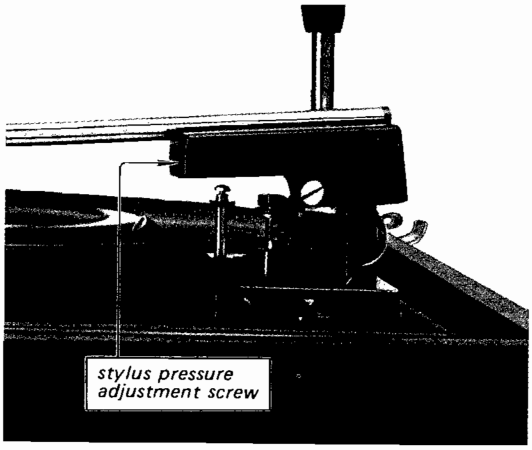


Fig. 3. Stylus pressure adjustment screw

2-2. PICK-UP ARM ANTI-SKATING (C-123R, C-123R2)

Having set the required stylus pressure, the anti-skating control (Fig. 2) is adjusted to a figure corresponding to the stylus pressure applied. The control is continuously adjustable so settings between the figures indicated.

Note: The anti-skating control settings described are those required under ideal conditions. Slight variation from the optimum may be necessary depending on the tracking condition. If, after setting the adjustment, the pick-up tends to skate outward, lower the setting, if it skates inward, increase the setting.

2-3. STYLUS SET-DOWN

The correct position for stylus set-down is 1/8" (3 mm) from the edge of the record. The position is adjusted by the stylus set-down adjustment screw (Fig. 4) and is best done with a stack of 10" records on the turntable. When correctly positioned for a 10" record the set-down will also be corrected for 7" and 12" records.

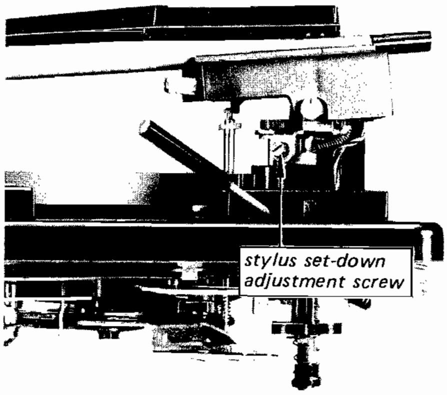


Fig. 4. Stylus set-down adjustment screw

2-4. PICK-UP ARM HEIGHT

The pick-up arm height is correct when the stylus clears the top of a stack of five average thickness records on the turntable by 1/8" (3 mm). The pick-up arm height may be raised by turning the pick-up arm height adjustment screw (Fig. 5) counterclockwise and lowered by turning it clockwise. After any adjustment a check must be made to ensure that the pick-up clears the underside of records held on the center spindle ledge and also is secured by the pick-up arm rest.

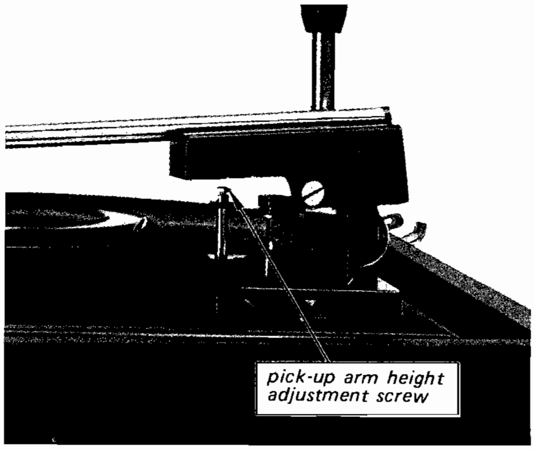
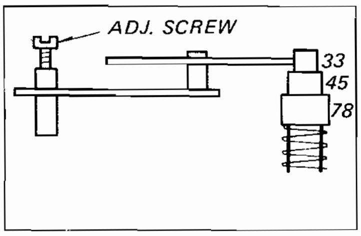


Fig. 5. Pick-up arm height adjustment screw

SECTION 3
TROUBLE CHART

Symptom	Cause	Remedy
Turntable does not revolve when starting lever is set to "START".	1. No current to motor 2. Idler pulley (A) not engaging turntable rim. 3. Idler pulley (A) not driving.	1. a) Check to see that current is reaching motor. b) Check that AC cord is plugged into outlet. c) Check that 4p connector is positively in place underneath changer. 2. Check if the idler arm is free to pivot: Check that idler pulley spring (B) is properly positioned. 3. Clean the inside rim of turntable and rubber tire of idler pulley (A) to ensure that they are free from residue and oil.
Turntable revolves when starting lever is set to "START", but pick-up arm raises then returns to rest and changer shuts off.	1. Pick-up arm height adjustment.	1. Adjust height as described under "ADJUSTMENTS".
Turntable stops or slows down in middle of change cycle.	1. Idler pulley (A) slips. 2. Insufficient tension on idler pulley spring (B).	1. Clean the inside rim of turntable and rubber tire of idler pulley (A). These drive surfaces must be free from oil and residue. 2. Check that idler pulley spring (B) is properly positioned and not distorted.
Pick-up arm fails to move to position to play last record. Pick-up arm returns to rest and changer shuts off.	1. Control Arm (C) sticking or binding.	1. Free control arm (C) by moving backward and forward several times.
Record fails to drop when changer cycles.	1. Bent or distorted center spindle (G). 2. Center spindle (G) not fully inserted.	1. Replace center spindle (G). 2. Make sure center spindle (G) is locked in place and fully engaged.
Turntable speed too slow.	1. Light motor bearings. 2. Binding turntable bearings. 3. Idler pulley (A) slips. 4. Ambient temperature too low. 5. Idler pulley (A) height adjustment incorrect.  	1. Bearings are self-aligning lightly tap side of motor laminations to free bearings. 2. Check turntable bearings for freedom. If turntable does not turn easily when idler pulley (A) is disengaged, remove turntable, clean off any accumulation of foreign matter, and lubricate bearings with light motor oil. 3. Check that idler arm riveting ass'y (D) is free in speed change arm ass'y (E). Check that end of idler arm riveting ass'y is not binding on unit plate. Check proper tension of sping (B). 4. Prolonged exposure to temperatures below 45° will result in slow initial speed. 5. Make idler pulley (A) adjustment. a) Disconnect unit from A.C. supply. b) Remove turntable. c) Switch unit on so that idler pulley (A) is engaged against pulley. d) Set speed control to 33. e) Using a screwdriver, turn adjustment screw higher or lower to position idler pulley (A) in center of 33 step of motor pulley. f) Check alignment of pulley at all speeds and reassemble turntable.

Note: Refer to exploded views on pages 8 to 16.
BSR C-123R : page 8 to 10.
BSR C-123R2: page 11 to 13.
BSR C-129R2: page 14 to 16.

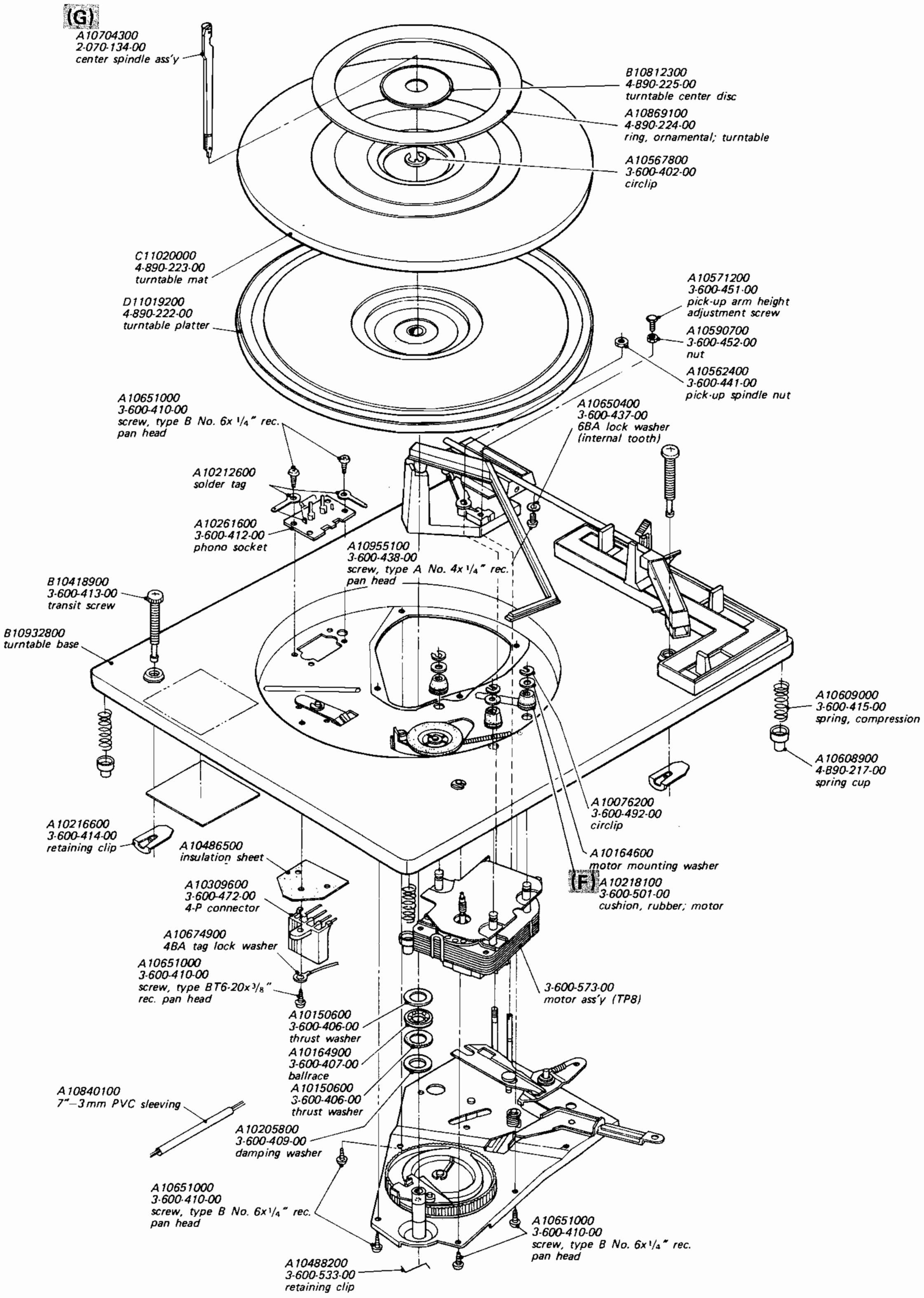
Symptom	Cause	Remedy
Pick-up arm strikes underside of record on spindle ledge, or stylus catches on top of last record while moving into playing position.	1. Incorrect pick-up arm height adjustment.	1. Adjust height as described under "ADJUSTMENTS".
Stylus set-down on wrong portion of record.	1. Incorrect stylus set-down adjustment.	1. Adjust stylus set-down as described under "ADJUSTMENTS".
Pick-up arm does not track correctly across record.	1. Stylus clogged with an accumulation of dust, stylus badly worn. 2. Cartridge output leads too tight. 3. Changer mechanism not level. 4. Insufficient stylus pressure.	1. Check for foreign matter around tip of stylus. Check for broken tip; replace if badly worn or broken. 2. Allow enough slack in cable to allow pick-up arm to move freely across record. 3. Check that changer is mounted in a LEVEL position before operating. 4. Adjust stylus pressure as described under "ADJUSTMENTS".
Changer fails to shut off after playing last record, and pick-up arm has returned to rest.	1. Leads from power supply binding switch.	1. Re-dress leads away from switch and switch lever.
Noise during playing of record.	1. Motor rumble. 2. Defective idler pulley (A).	1. If a low pitched rumbling sound comes from the speaker, check rubber motor cushion (F) to ensure the motor is finaling free. Motor leads should have enough slack to allow motor to float on its rubber cushion (F). 2. A rapid thumping sound while the motor is running is indicative of uneven wear on the rubber tire of idler pulley (A). Check for smooth surface of rubber tire; if surface is rough, replace idler pulley.
Two records drop together.	1. Hole in record too large. 2. Control Arm (C) not firmly seated (probably due to incorrect loading of records). 3. Control Arm (C) not holding records level.	1. Replace record. 2. Check control arm shaft for burrs and foreign matter carefully clean and remove any burrs. DO NOT OIL. It should fail in position from its own weight. 3. Gently twist control arm (C) until it will hold record stack parallel to the top of turntable.

Note: Refer to exploded views on pages 8 to 16.
BSR C-123R : page 8 to 10.
BSR C-123R2: page 11 to 13.
BSR C-129R2: page 14 to 16.

SECTION 4
EXPLODED VIEWS

4-1. C-123R

(1)


(G)
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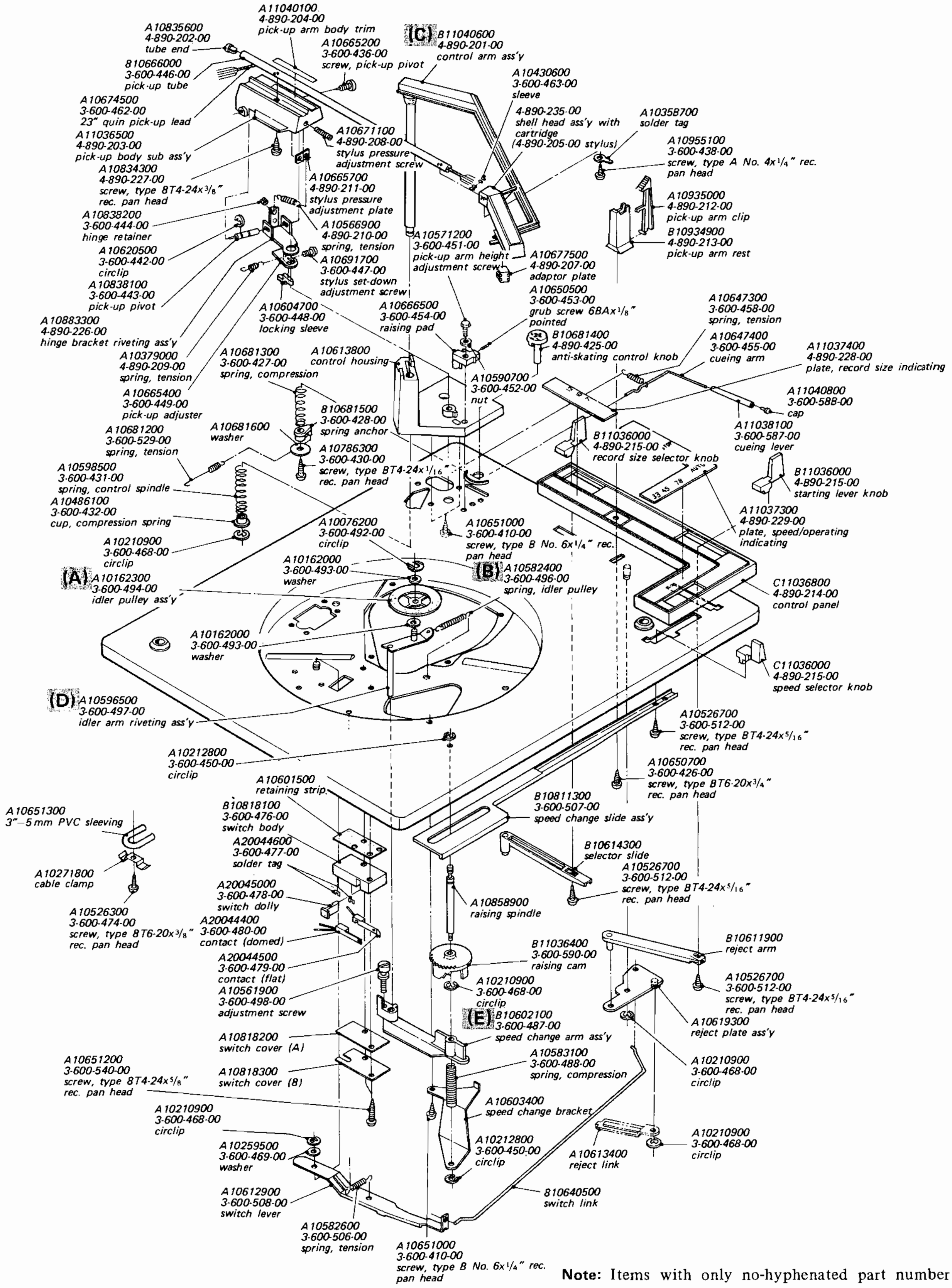
2-070-134-00
center spindle ass'y
B10812300
4-890-225-00
turntable center disc
A10869100
4-890-224-00
ring, ornamental; turntable
A10567800
3-600-402-00
circlip
C11020000
4-890-223-00
turntable mat
D11019200
4-890-222-00
turntable platter
A10571200
3-600-451-00
pick-up arm height adjustment screw
A10590700
3-600-452-00
nut
A10562400
3-600-441-00
pick-up spindle nut
A10651000
3-600-410-00
screw, type B No. 6x¼" rec. pan head
A10650400
3-600-437-00
6BA lock washer (internal tooth)
A10212600
solder tag
A10261600
3-600-412-00
phono socket
A10955100
3-600-438-00
screw, type A No. 4x¼" rec. pan head
B10418900
3-600-413-00
transit screw
B10932800
turntable base
A10609000
3-600-415-00
spring, compression
A10608900
4-890-217-00
spring cup
A10076200
3-600-492-00
circlip
A10216600
3-600-414-00
retaining clip
A10486500
insulation sheet
A10164600
motor mounting washer
(F) A10218100
3-600-501-00
cushion, rubber; motor
A10309600
3-600-472-00
4-P connector
A10674900
4BA tag lock washer
A10651000
3-600-410-00
screw, type BT6-20x⅜" rec. pan head
3-600-573-00
motor ass'y (TP8)
A10150600
3-600-406-00
thrust washer
A10164900
3-600-407-00
ballrace
A10150600
3-600-406-00
thrust washer
A10840100
7"–3mm PVC sleeving
A10205800
3-600-409-00
damping washer
A10651000
3-600-410-00
screw, type B No. 6x¼" rec. pan head
A10651000
3-600-410-00
screw, type B No. 6x¼" rec. pan head
A10488200
3-600-533-00
retaining clip

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

(2)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4-890-204-00
pick-up arm body trim
A10835600
4-890-202-00
tube end
A10665200
3-600-436-00
screw, pick-up pivot
(C) B11040600
4-890-201-00
control arm ass'y
810666000
3-600-446-00
pick-up tube
A10430600
3-600-463-00
sleeve
A10674500
3-600-462-00
23" quin pick-up lead
4-890-235-00
shell head ass'y with
cartridge
(4-890-205-00 stylus)
A1035B700
solder tag
A11036500
4-890-203-00
pick-up body sub ass'y
A10671100
4-890-208-00
stylus pressure
adjustment screw
A10955100
3-600-438-00
screw, type A No. 4x1/4" rec.
pan head
A10834300
4-890-227-00
screw, type 8T4-24x3/8"
rec. pan head
A10665700
4-890-211-00
stylus pressure
adjustment plate
A10935000
4-890-212-00
pick-up arm clip
A10838200
3-600-444-00
hinge retainer
A10566900
4-890-210-00
spring, tension
B10934900
4-890-213-00
pick-up arm rest
A10571200
3-600-451-00
pick-up arm height
adjustment screw
A10620500
3-600-442-00
circlip
A10691700
3-600-447-00
stylus set-down
adjustment screw
A10677500
4-890-207-00
adaptor plate
A10838100
3-600-443-00
pick-up pivot
A10650500
3-600-453-00
grub screw 6BAx1/8"
pointed
A10647300
3-600-458-00
spring, tension
A10883300
4-890-226-00
hinge bracket riveting ass'y
A10604700
3-600-448-00
locking sleeve
A10666500
3-600-454-00
raising pad
B10681400
4-890-425-00
anti-skating control knob
A10647400
3-600-455-00
cueing arm
A11037400
4-890-228-00
plate, record size indicating
A10379000
4-890-209-00
spring, tension
A10681300
3-600-427-00
spring, compression
A10613800
control housing
A10590700
3-600-452-00
nut
A11040800
3-600-58B-00
cap
A10665400
3-600-449-00
pick-up adjuster
810681500
3-600-428-00
spring anchor
A11038100
3-600-587-00
cueing lever
A10681200
3-600-529-00
spring, tension
A10681600
washer
B11036000
4-890-215-00
record size selector knob
A10786300
3-600-430-00
screw, type BT4-24x1/16"
rec. pan head
B11036000
4-B90-215-00
starting lever knob
A10598500
3-600-431-00
spring, control spindle
A10486100
3-600-432-00
cup, compression spring
A11037300
4-890-229-00
plate, speed/operating
indicating
A10076200
3-600-492-00
circlip
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec.
pan head
A10210900
3-600-468-00
circlip
A10162000
3-600-493-00
washer
(B) A10582400
3-600-496-00
spring, idler pulley
C11036800
4-890-214-00
control panel
(A) A10162300
3-600-494-00
idler pulley ass'y
33 45 78
AUTO
A10162000
3-600-493-00
washer
C11036000
4-890-215-00
speed selector knob
(D) A10596500
3-600-497-00
idler arm riveting ass'y
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
A10212800
3-600-450-00
circlip
A10650700
3-600-426-00
screw, type BT6-20x3/4"
rec. pan head
A10601500
retaining strip
B10811300
3-600-507-00
speed change slide ass'y
A10651300
3"–5mm PVC sleeving
B10818100
3-600-476-00
switch body
A20044600
3-600-477-00
solder tag
B10614300
selector slide
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
A10271800
cable clamp
A20045000
3-600-478-00
switch dolly
A10858900
raising spindle
A10526300
3-600-474-00
screw, type 8T6-20x3/8"
rec. pan head
A20044400
3-600-480-00
contact (domed)
B11036400
3-600-590-00
raising cam
B10611900
reject arm
A20044500
3-600-479-00
contact (flat)
A10210900
3-600-468-00
circlip
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
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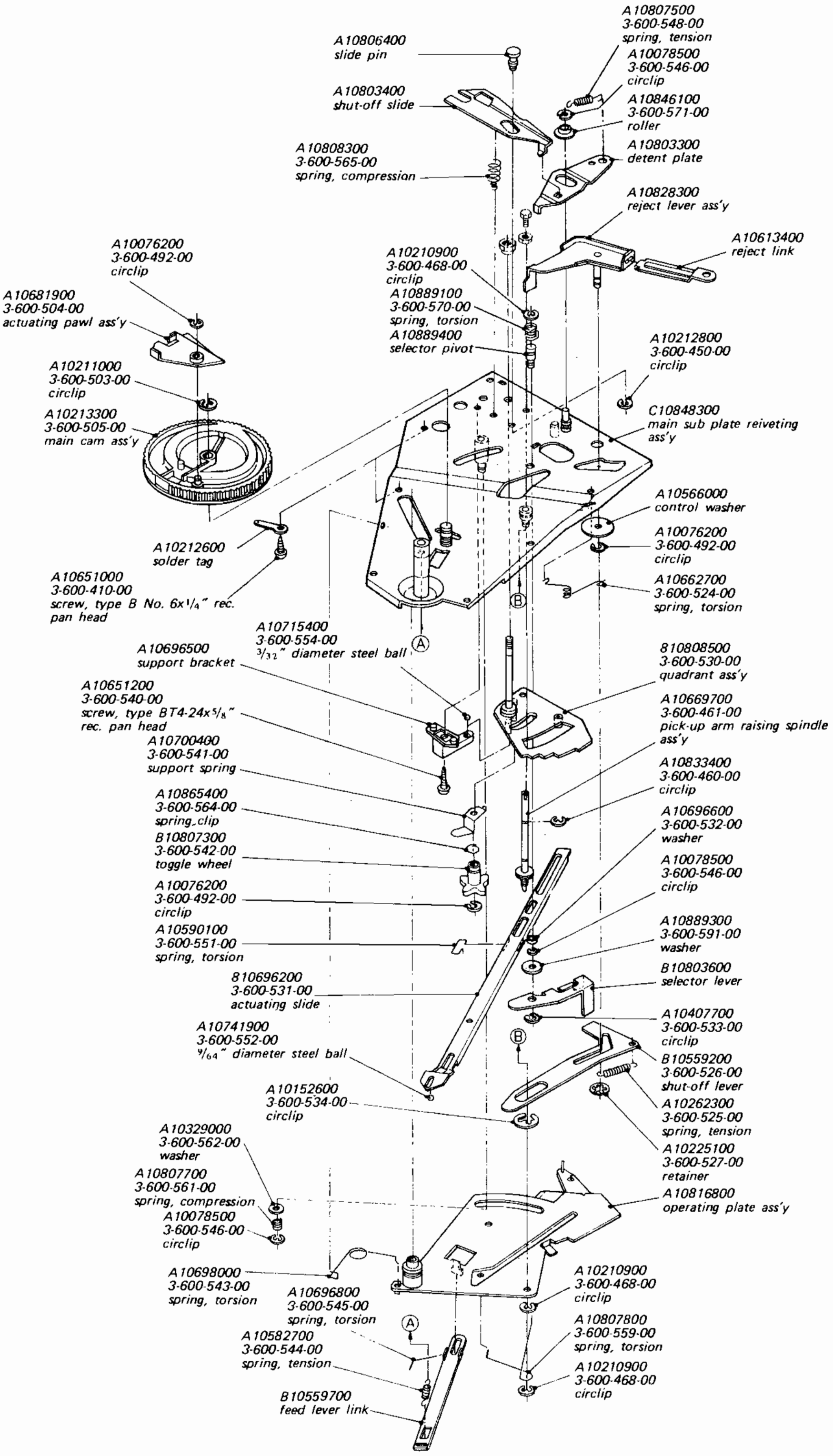
3-600-498-00
adjustment screw
(E) B10602100
3-600-487-00
speed change arm ass'y
A10619300
reject plate ass'y
A10818200
switch cover (A)
A10583100
3-600-488-00
spring, compression
A10210900
3-600-468-00
circlip
A10651200
3-600-540-00
screw, type 8T4-24x5/8"
rec. pan head
A10818300
switch cover (8)
A10603400
speed change bracket
A10210900
3-600-468-00
circlip
A10212800
3-600-450-00
circlip
A10210900
3-600-468-00
circlip
A10259500
3-600-469-00
washer
A10613400
reject link
A10612900
3-600-508-00
switch lever
810640500
switch link
A10582600
3-600-506-00
spring, tension
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec.
pan head

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

(3)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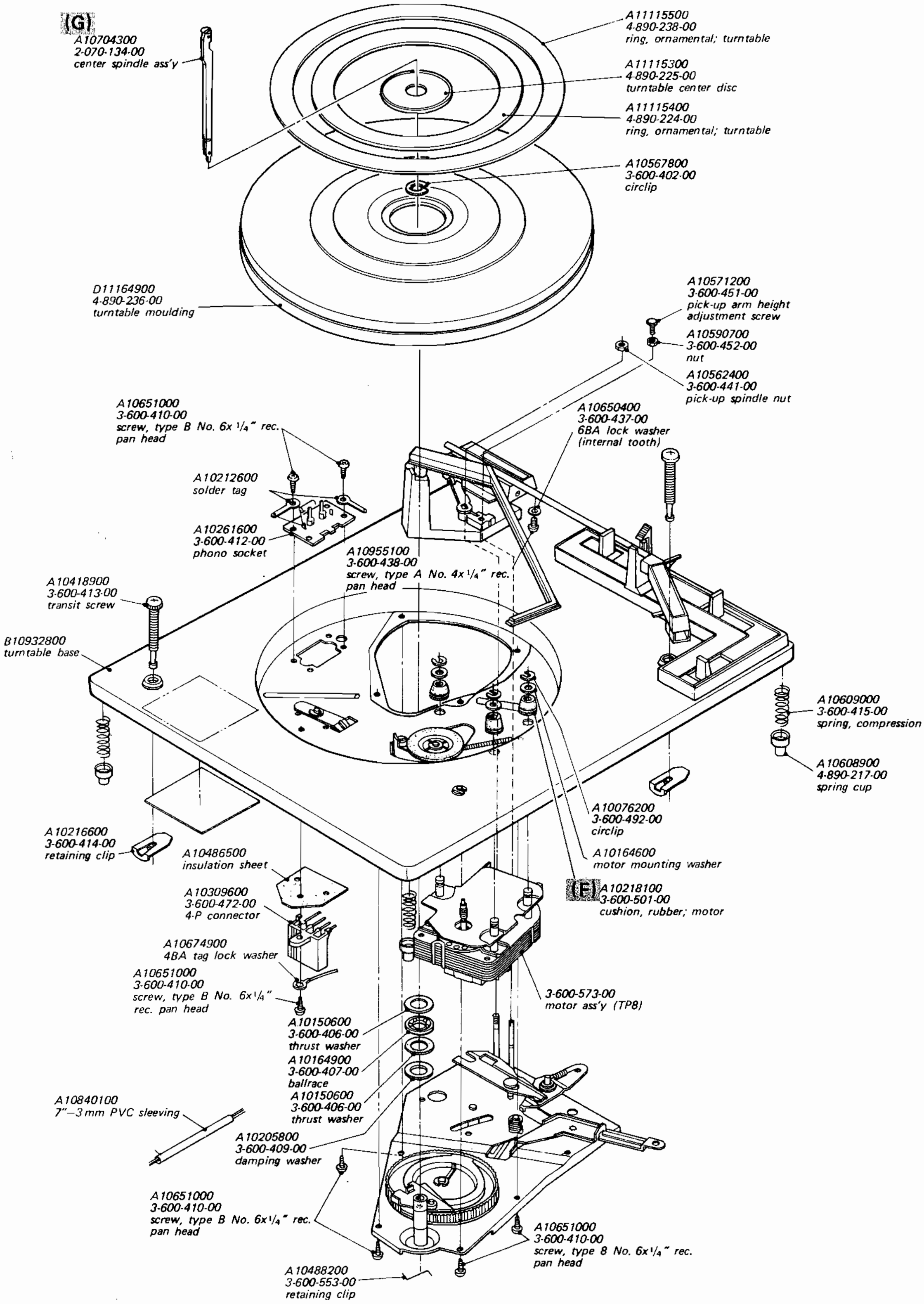
slide pin
A10078500
3-600-546-00
circlip
A10803400
shut-off slide
A10846100
3-600-571-00
roller
A10808300
3-600-565-00
spring, compression
A10803300
detent plate
A10828300
reject lever ass'y
A10076200
3-600-492-00
circlip
A10210900
3-600-468-00
circlip
A10613400
reject link
A10681900
3-600-504-00
actuating pawl ass'y
A10889100
3-600-570-00
spring, torsion
A10889400
selector pivot
A10211000
3-600-503-00
circlip
A10212800
3-600-450-00
circlip
A10213300
3-600-505-00
main cam ass'y
C10848300
main sub plate reiveting ass'y
A10566000
control washer
A10076200
3-600-492-00
circlip
A10212600
solder tag
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
A10662700
3-600-524-00
spring, torsion
A10715400
3-600-554-00
3/32" diameter steel ball
Ⓐ
A10696500
support bracket
Ⓑ
B10808500
3-600-530-00
quadrant ass'y
A10651200
3-600-540-00
screw, type BT4-24x5/8" rec. pan head
A10669700
3-600-461-00
pick-up arm raising spindle ass'y
A10700400
3-600-541-00
support spring
A10833400
3-600-460-00
circlip
A10865400
3-600-564-00
spring, clip
A10696600
3-600-532-00
washer
B10807300
3-600-542-00
toggle wheel
A10078500
3-600-546-00
circlip
A10076200
3-600-492-00
circlip
A10889300
3-600-591-00
washer
A10590100
3-600-551-00
spring, torsion
B10803600
selector lever
B10696200
3-600-531-00
actuating slide
A10407700
3-600-533-00
circlip
A10741900
3-600-552-00
9/64" diameter steel ball
Ⓑ
B10559200
3-600-526-00
shut-off lever
A10152600
3-600-534-00
circlip
A10262300
3-600-525-00
spring, tension
A10329000
3-600-562-00
washer
A10225100
3-600-527-00
retainer
A10807700
3-600-561-00
spring, compression
A10816800
operating plate ass'y
A10078500
3-600-546-00
circlip
A10698000
3-600-543-00
spring, torsion
A10696800
3-600-545-00
spring, torsion
A10210900
3-600-468-00
circlip
Ⓐ
A10807800
3-600-559-00
spring, torsion
A10582700
3-600-544-00
spring, tension
A10210900
3-600-468-00
circlip
B10559700
feed lever link

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

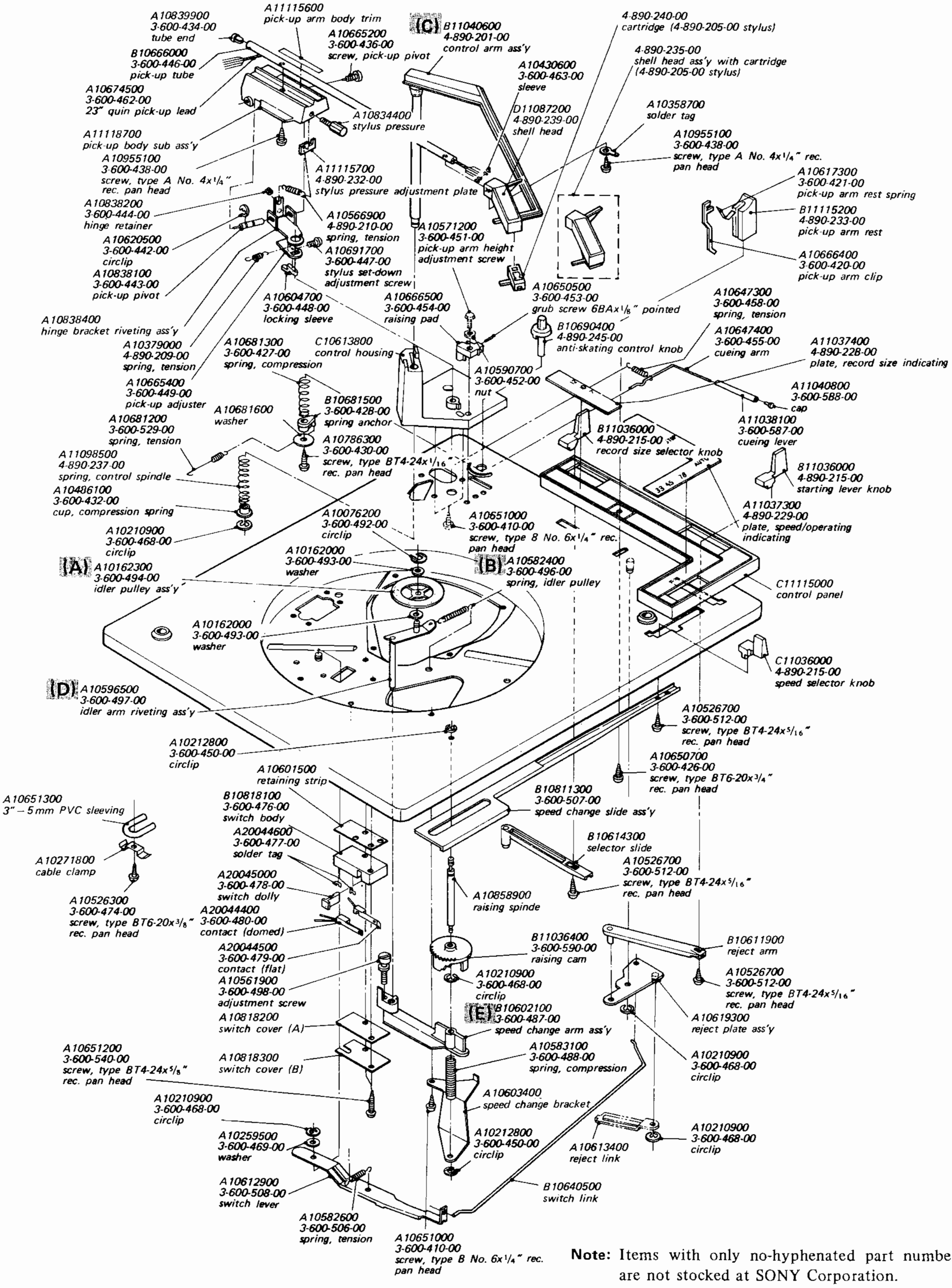
4-2. C-123R2

(1)


(G)
A10704300
2-070-134-00
center spindle ass'y
A11115500
4-890-238-00
ring, ornamental; turntable
A11115300
4-890-225-00
turntable center disc
A11115400
4-890-224-00
ring, ornamental; turntable
A10567800
3-600-402-00
circlip
D11164900
4-890-236-00
turntable moulding
A10571200
3-600-451-00
pick-up arm height adjustment screw
A10590700
3-600-452-00
nut
A10562400
3-600-441-00
pick-up spindle nut
A10651000
3-600-410-00
screw, type B No. 6x 1/4" rec. pan head
A10650400
3-600-437-00
6BA lock washer (internal tooth)
A10212600
solder tag
A10261600
3-600-412-00
phono socket
A10955100
3-600-438-00
screw, type A No. 4x 1/4" rec. pan head
A10418900
3-600-413-00
transit screw
B10932800
turntable base
A10609000
3-600-415-00
spring, compression
A10608900
4-890-217-00
spring cup
A10076200
3-600-492-00
circlip
A10164600
motor mounting washer
A10216600
3-600-414-00
retaining clip
A10486500
insulation sheet
(E) A10218100
3-600-501-00
cushion, rubber; motor
A10309600
3-600-472-00
4-P connector
A10674900
4BA tag lock washer
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
3-600-573-00
motor ass'y (TP8)
A10150600
3-600-406-00
thrust washer
A10164900
3-600-407-00
ballrace
A10150600
3-600-406-00
thrust washer
A10840100
7"–3mm PVC sleeving
A10205800
3-600-409-00
damping washer
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
A10651000
3-600-410-00
screw, type 8 No. 6x1/4" rec. pan head
A10488200
3-600-553-00
retaining clip

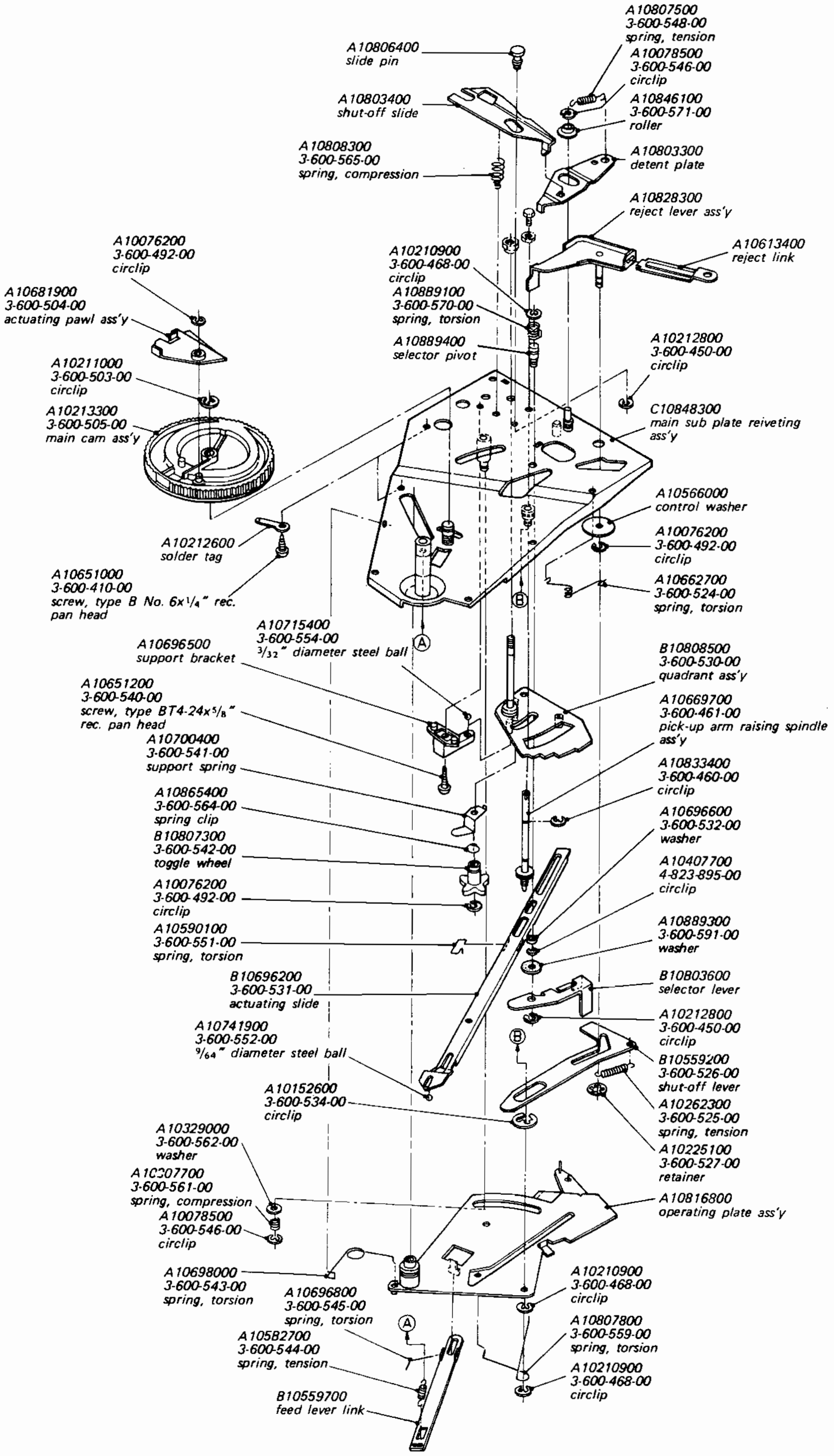
Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

(2)


A10839900
3-600-434-00
tube end
A11115600
pick-up arm body trim
(C) B11040600
4-890-201-00
control arm ass'y
4-890-240-00
cartridge (4-890-205-00 stylus)
B10666000
3-600-446-00
pick-up tube
A10665200
3-600-436-00
screw, pick-up pivot
4-890-235-00
shell head ass'y with cartridge
(4-890-205-00 stylus)
A10430600
3-600-463-00
sleeve
A10674500
3-600-462-00
23" quin pick-up lead
D11087200
4-890-239-00
shell head
A10358700
solder tag
A10834400
stylus pressure
A11118700
pick-up body sub ass'y
A10955100
3-600-438-00
screw, type A No. 4x¼" rec.
pan head
A10955100
3-600-438-00
screw, type A No. 4x¼"
rec. pan head
A11115700
4-890-232-00
stylus pressure adjustment plate
A10617300
3-600-421-00
pick-up arm rest spring
A10838200
3-600-444-00
hinge retainer
B11115200
4-890-233-00
pick-up arm rest
A10566900
4-890-210-00
spring, tension
A10571200
3-600-451-00
pick-up arm height
adjustment screw
A10620500
3-600-442-00
circlip
A10691700
3-600-447-00
stylus set-down
adjustment screw
A10666400
3-600-420-00
pick-up arm clip
A10838100
3-600-443-00
pick-up pivot
A10650500
3-600-453-00
grub screw 6BAx⅛" pointed
A10604700
3-600-448-00
locking sleeve
A10666500
3-600-454-00
raising pad
A10647300
3-600-458-00
spring, tension
A10838400
hinge bracket riveting ass'y
B10690400
4-890-245-00
anti-skating control knob
A10647400
3-600-455-00
cueing arm
A11037400
4-890-228-00
plate, record size indicating
A10379000
4-890-209-00
spring, tension
A10681300
3-600-427-00
spring, compression
C10613800
control housing
A10590700
3-600-452-00
nut
A11040800
3-600-588-00
cap
A10665400
3-600-449-00
pick-up adjuster
B10681500
3-600-428-00
spring anchor
A11038100
3-600-587-00
cueing lever
A10681200
3-600-529-00
spring, tension
A10681600
washer
B11036000
4-890-215-00
record size selector knob
A10786300
3-600-430-00
screw, type BT4-24x¹/₁₆"
rec. pan head
B11036000
4-890-215-00
starting lever knob
A11098500
4-890-237-00
spring, control spindle
A10486100
3-600-432-00
cup, compression spring
A10076200
3-600-492-00
circlip
A10651000
3-600-410-00
screw, type 8 No. 6x¼" rec.
pan head
A11037300
4-890-229-00
plate, speed/operating
indicating
A10210900
3-600-468-00
circlip
A10162000
3-600-493-00
washer
(B) A10582400
3-600-496-00
spring, idler pulley
(A) A10162300
3-600-494-00
idler pulley ass'y
C11115000
control panel
A10162000
3-600-493-00
washer
C11036000
4-890-215-00
speed selector knob
(D) A10596500
3-600-497-00
idler arm riveting ass'y
A10526700
3-600-512-00
screw, type BT4-24x⁵/₁₆"
rec. pan head
A10212800
3-600-450-00
circlip
A10650700
3-600-426-00
screw, type BT6-20x¾"
rec. pan head
A10601500
retaining strip
B10811300
3-600-507-00
speed change slide ass'y
A10651300
3" – 5mm PVC sleeving
B10818100
3-600-476-00
switch body
A20044600
3-600-477-00
solder tag
B10614300
selector slide
A10271800
cable clamp
A10526700
3-600-512-00
screw, type BT4-24x⁵/₁₆"
rec. pan head
A20045000
3-600-478-00
switch dolly
A10858900
raising spinde
A10526300
3-600-474-00
screw, type BT6-20x⅜"
rec. pan head
A20044400
3-600-480-00
contact (domed)
B11036400
3-600-590-00
raising cam
B10611900
reject arm
A20044500
3-600-479-00
contact (flat)
A10210900
3-600-468-00
circlip
A10526700
3-600-512-00
screw, type BT4-24x⁵/₁₆"
rec. pan head
A10561900
3-600-498-00
adjustment screw
(E) B10602100
3-600-487-00
speed change arm ass'y
A10619300
reject plate ass'y
A10818200
switch cover (A)
A10583100
3-600-488-00
spring, compression
A10210900
3-600-468-00
circlip
A10651200
3-600-540-00
screw, type BT4-24x⅝"
rec. pan head
A10818300
switch cover (B)
A10603400
speed change bracket
A10210900
3-600-468-00
circlip
A10259500
3-600-469-00
washer
A10212800
3-600-450-00
circlip
A10613400
reject link
A10210900
3-600-468-00
circlip
A10612900
3-600-508-00
switch lever
B10640500
switch link
A10582600
3-600-506-00
spring, tension
A10651000
3-600-410-00
screw, type B No. 6x¼" rec.
pan head

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

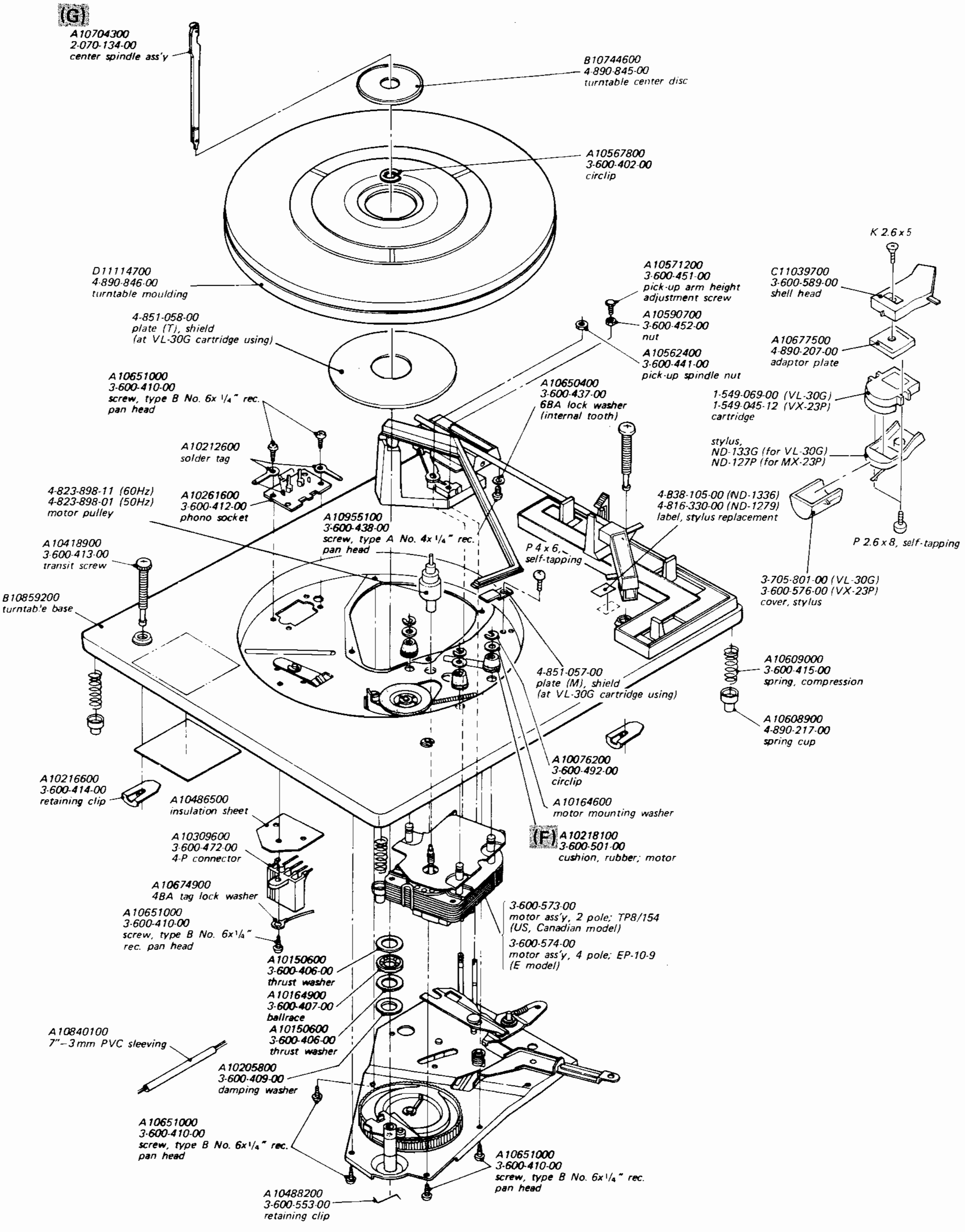
(3)


A10807500
3-600-548-00
spring, tension
A10806400
slide pin
A10078500
3-600-546-00
circlip
A10803400
shut-off slide
A10846100
3-600-571-00
roller
A10808300
3-600-565-00
spring, compression
A10803300
detent plate
A10828300
reject lever ass'y
A10076200
3-600-492-00
circlip
A10210900
3-600-468-00
circlip
A10613400
reject link
A10681900
3-600-504-00
actuating pawl ass'y
A10889100
3-600-570-00
spring, torsion
A10889400
selector pivot
A10212800
3-600-450-00
circlip
A10211000
3-600-503-00
circlip
A10213300
3-600-505-00
main cam ass'y
C10848300
main sub plate reiveting ass'y
A10566000
control washer
A10076200
3-600-492-00
circlip
A10212600
solder tag
A10651000
3-600-410-00
screw, type B No. 6x¼" rec. pan head
A10662700
3-600-524-00
spring, torsion
A10715400
3-600-554-00
3/32" diameter steel ball
A10696500
support bracket
Ⓐ
Ⓑ
B10808500
3-600-530-00
quadrant ass'y
A10651200
3-600-540-00
screw, type BT4-24x5/8" rec. pan head
A10669700
3-600-461-00
pick-up arm raising spindle ass'y
A10700400
3-600-541-00
support spring
A10833400
3-600-460-00
circlip
A10865400
3-600-564-00
spring clip
A10696600
3-600-532-00
washer
B10807300
3-600-542-00
toggle wheel
A10407700
4-823-895-00
circlip
A10076200
3-600-492-00
circlip
A10889300
3-600-591-00
washer
A10590100
3-600-551-00
spring, torsion
B10696200
3-600-531-00
actuating slide
B10803600
selector lever
A10212800
3-600-450-00
circlip
A10741900
3-600-552-00
9/64" diameter steel ball
Ⓑ
B10559200
3-600-526-00
shut-off lever
A10152600
3-600-534-00
circlip
A10262300
3-600-525-00
spring, tension
A10329000
3-600-562-00
washer
A10225100
3-600-527-00
retainer
A10307700
3-600-561-00
spring, compression
A10816800
operating plate ass'y
A10078500
3-600-546-00
circlip
A10698000
3-600-543-00
spring, torsion
A10210900
3-600-468-00
circlip
A10696800
3-600-545-00
spring, torsion
Ⓐ
A10807800
3-600-559-00
spring, torsion
A10582700
3-600-544-00
spring, tension
A10210900
3-600-468-00
circlip
B10559700
feed lever link

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

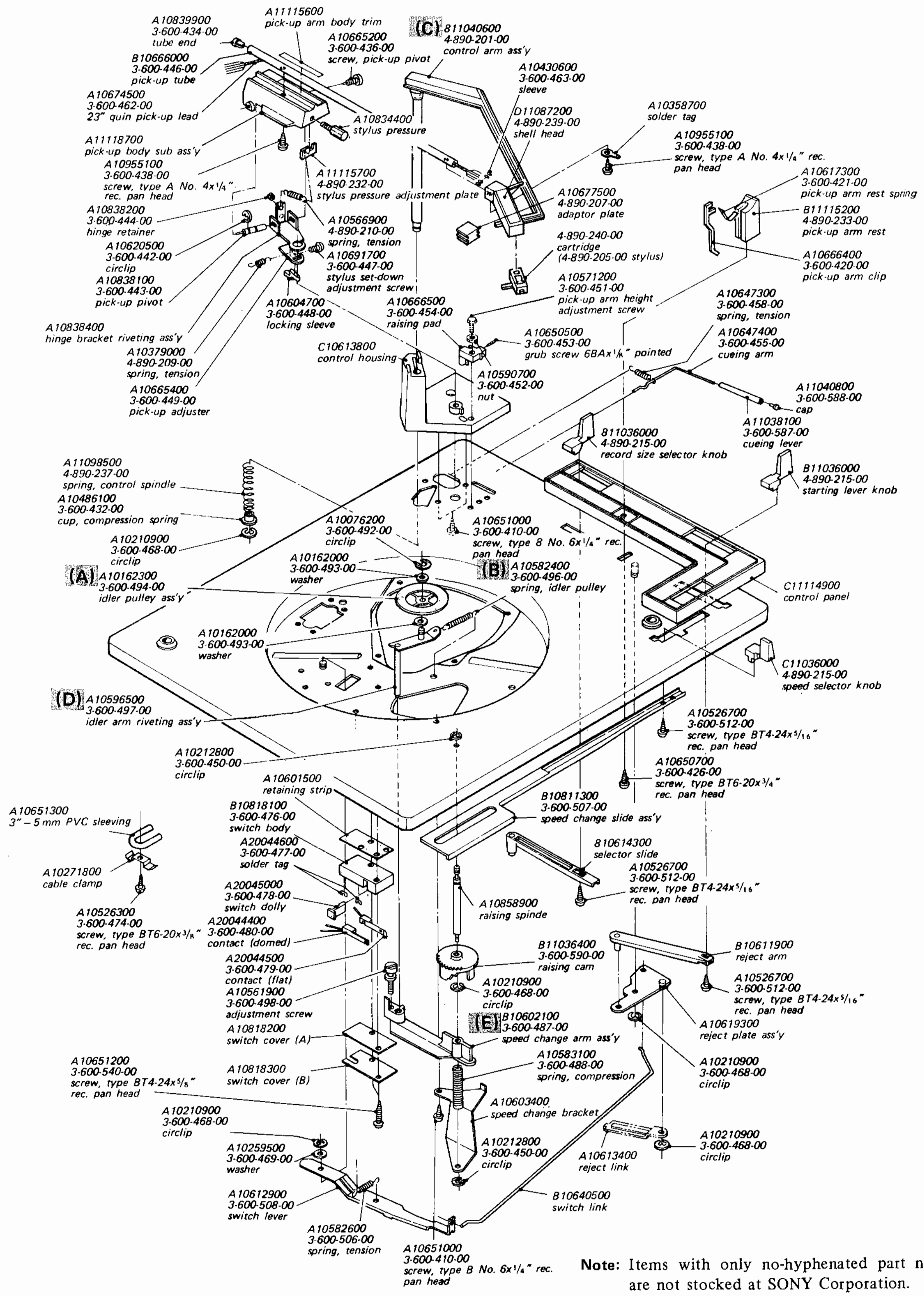
4-3. C-129R2

(1)


(G)
A10704300
2-070-134-00
center spindle ass'y
B10744600
4-890-845-00
turntable center disc
A10567800
3-600-402-00
circlip
K 2.6x5
D11114700
4-890-846-00
turntable moulding
A10571200
3-600-451-00
pick-up arm height adjustment screw
C11039700
3-600-589-00
shell head
4-851-058-00
plate (T), shield
(at VL-30G cartridge using)
A10590700
3-600-452-00
nut
A10677500
4-890-207-00
adaptor plate
A10562400
3-600-441-00
pick-up spindle nut
A10651000
3-600-410-00
screw, type B No. 6x 1/4" rec. pan head
A10650400
3-600-437-00
6BA lock washer
(internal tooth)
1-549-069-00 (VL-30G)
1-549-045-12 (VX-23P)
cartridge
A10212600
solder tag
stylus,
ND-133G (for VL-30G)
ND-127P (for MX-23P)
4-823-898-11 (60Hz)
4-823-898-01 (50Hz)
motor pulley
A10261600
3-600-412-00
phono socket
4-B38-105-00 (ND-1336)
4-816-330-00 (ND-1279)
label, stylus replacement
A10955100
3-600-438-00
screw, type A No. 4x 1/4" rec. pan head
A10418900
3-600-413-00
transit screw
P 4x6,
self-tapping
P 2.6x8, self-tapping
B10859200
turntable base
3-705-801-00 (VL-30G)
3-600-576-00 (VX-23P)
cover, stylus
A10609000
3-600-415-00
spring, compression
4-851-057-00
plate (M), shield
(at VL-30G cartridge using)
A10608900
4-890-217-00
spring cup
A10076200
3-600-492-00
circlip
A10216600
3-600-414-00
retaining clip
A10486500
insulation sheet
A10164600
motor mounting washer
(F) A10218100
3-600-501-00
cushion, rubber; motor
A10309600
3-600-472-00
4-P connector
A10674900
4BA tag lock washer
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
3-600-573-00
motor ass'y, 2 pole; TP8/154
(US, Canadian model)
3-600-574-00
motor ass'y, 4 pole; EP-10-9
(E model)
A10150600
3-600-406-00
thrust washer
A10164900
3-600-407-00
ballrace
A10150600
3-600-406-00
thrust washer
A10840100
7"–3mm PVC sleeving
A10205800
3-600-409-00
damping washer
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
A10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
A10488200
3-600-553-00
retaining clip

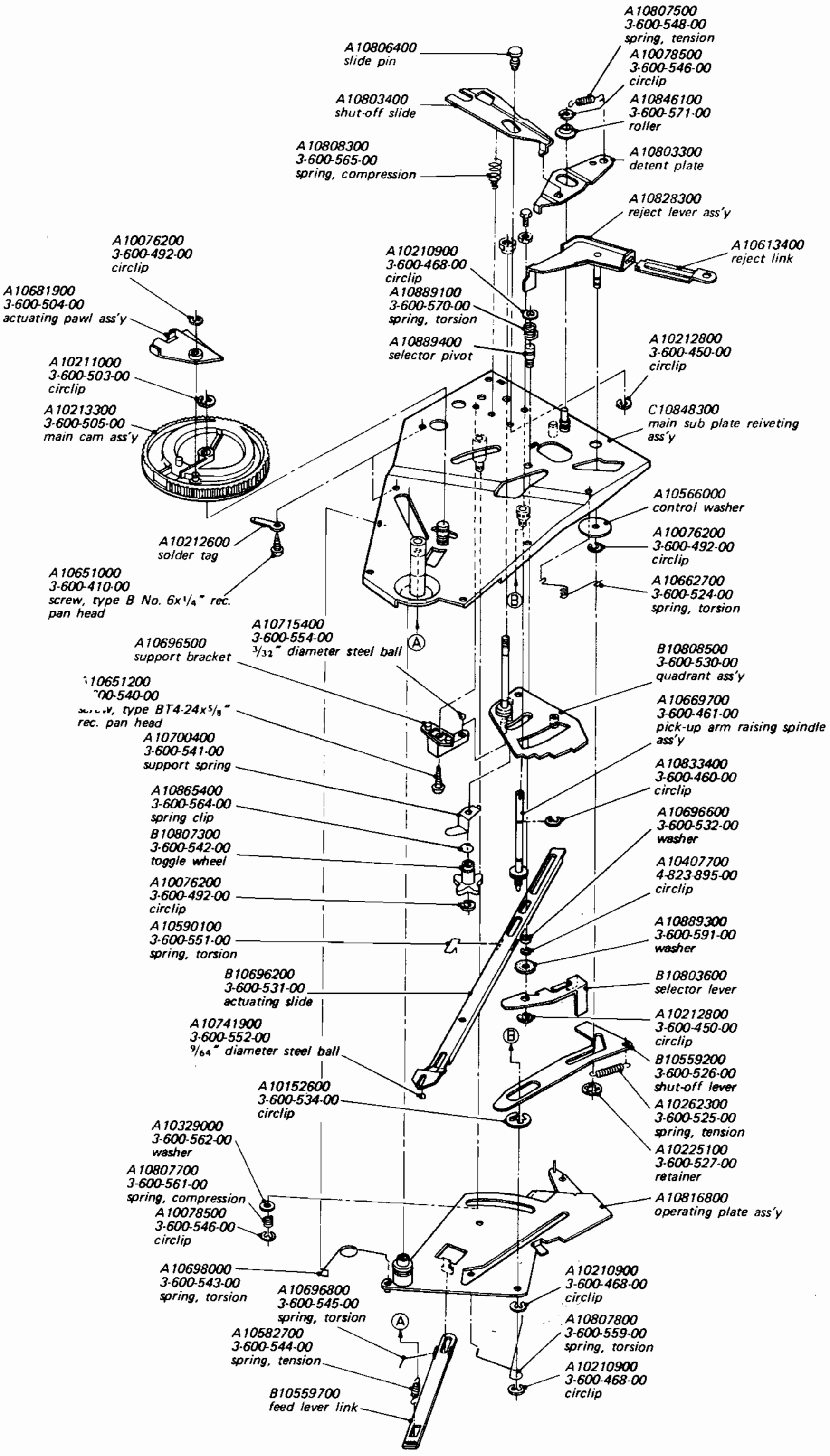
Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

(2)


A10839900
3-600-434-00
tube end
A11115600
pick-up arm body trim
(C) 811040600
4-890-201-00
control arm ass'y
A10665200
3-600-436-00
screw, pick-up pivot
B10666000
3-600-446-00
pick-up tube
A10674500
3-600-462-00
23" quin pick-up lead
A10430600
3-600-463-00
sleeve
D11087200
4-890-239-00
shell head
A10358700
solder tag
A10834400
stylus pressure
A11118700
pick-up body sub ass'y
A10955100
3-600-438-00
screw, type A No. 4x¼"
rec. pan head
A10955100
3-600-438-00
screw, type A No. 4x¼" rec.
pan head
A11115700
4-890-232-00
stylus pressure adjustment plate
A10617300
3-600-421-00
pick-up arm rest spring
B11115200
4-890-233-00
pick-up arm rest
A10677500
4-890-207-00
adaptor plate
A10838200
3-600-444-00
hinge retainer
A10566900
4-890-210-00
spring, tension
4-890-240-00
cartridge
(4-890-205-00 stylus)
A10666400
3-600-420-00
pick-up arm clip
A10620500
3-600-442-00
circlip
A10691700
3-600-447-00
stylus set-down
adjustment screw
A10838100
3-600-443-00
pick-up pivot
A10571200
3-600-451-00
pick-up arm height
adjustment screw
A10647300
3-600-458-00
spring, tension
A10604700
3-600-448-00
locking sleeve
A10666500
3-600-454-00
raising pad
A10838400
hinge bracket riveting ass'y
A10650500
3-600-453-00
grub screw 6BAx⅛" pointed
A10647400
3-600-455-00
cueing arm
A10379000
4-890-209-00
spring, tension
C10613800
control housing
A10590700
3-600-452-00
nut
A10665400
3-600-449-00
pick-up adjuster
A11040800
3-600-588-00
cap
A11038100
3-600-587-00
cueing lever
811036000
4-890-215-00
record size selector knob
A11098500
4-890-237-00
spring, control spindle
B11036000
4-890-215-00
starting lever knob
A10486100
3-600-432-00
cup, compression spring
A10076200
3-600-492-00
circlip
A10651000
3-600-410-00
screw, type 8 No. 6x¼" rec.
pan head
A10210900
3-600-468-00
circlip
A10162000
3-600-493-00
washer
(B) A10582400
3-600-496-00
spring, idler pulley
(A) A10162300
3-600-494-00
idler pulley ass'y
C11114900
control panel
A10162000
3-600-493-00
washer
C11036000
4-890-215-00
speed selector knob
(D) A10596500
3-600-497-00
idler arm riveting ass'y
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
A10212800
3-600-450-00
circlip
A10650700
3-600-426-00
screw, type BT6-20x¾"
rec. pan head
A10601500
retaining strip
B10811300
3-600-507-00
speed change slide ass'y
A10651300
3" – 5 mm PVC sleeving
B10818100
3-600-476-00
switch body
A20044600
3-600-477-00
solder tag
810614300
selector slide
A10271800
cable clamp
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
A20045000
3-600-478-00
switch dolly
A10858900
raising spinde
A10526300
3-600-474-00
screw, type BT6-20x⅜"
rec. pan head
A20044400
3-600-480-00
contact (domed)
B11036400
3-600-590-00
raising cam
B10611900
reject arm
A20044500
3-600-479-00
contact (flat)
A10210900
3-600-468-00
circlip
A10526700
3-600-512-00
screw, type BT4-24x5/16"
rec. pan head
A10561900
3-600-498-00
adjustment screw
(E) B10602100
3-600-487-00
speed change arm ass'y
A10619300
reject plate ass'y
A10818200
switch cover (A)
A10583100
3-600-488-00
spring, compression
A10651200
3-600-540-00
screw, type BT4-24x⅝"
rec. pan head
A10818300
switch cover (B)
A10210900
3-600-468-00
circlip
A10603400
speed change bracket
A10210900
3-600-468-00
circlip
A10212800
3-600-450-00
circlip
A10210900
3-600-468-00
circlip
A10259500
3-600-469-00
washer
A10613400
reject link
A10612900
3-600-508-00
switch lever
B10640500
switch link
A10582600
3-600-506-00
spring, tension
A10651000
3-600-410-00
screw, type B No. 6x¼" rec.
pan head

Note: Items with only no-hyphenated part number are not stocked at SONY Corporation.

(3) C-129R2


A 10807500
3-600-548-00
spring, tension
A 10806400
slide pin
A 10078500
3-600-546-00
circlip
A 10803400
shut-off slide
A 10846100
3-600-571-00
roller
A 10808300
3-600-565-00
spring, compression
A 10803300
detent plate
A 10828300
reject lever ass'y
A 10076200
3-600-492-00
circlip
A 10613400
reject link
A 10210900
3-600-468-00
circlip
A 10681900
3-600-504-00
actuating pawl ass'y
A 10889100
3-600-570-00
spring, torsion
A 10889400
selector pivot
A 10212800
3-600-450-00
circlip
A 10211000
3-600-503-00
circlip
C 10848300
main sub plate reiveting ass'y
A 10213300
3-600-505-00
main cam ass'y
A 10566000
control washer
A 10076200
3-600-492-00
circlip
A 10212600
solder tag
A 10651000
3-600-410-00
screw, type B No. 6x1/4" rec. pan head
A 10662700
3-600-524-00
spring, torsion
Ⓑ
A 10715400
3-600-554-00
3/32" diameter steel ball
Ⓐ
A 10696500
support bracket
B 10808500
3-600-530-00
quadrant ass'y
10651200
00-540-00
, type BT4-24x5/8" rec. pan head
A 10669700
3-600-461-00
pick-up arm raising spindle ass'y
A 10700400
3-600-541-00
support spring
A 10833400
3-600-460-00
circlip
A 10865400
3-600-564-00
spring clip
A 10696600
3-600-532-00
washer
B 10807300
3-600-542-00
toggle wheel
A 10407700
4-823-895-00
circlip
A 10076200
3-600-492-00
circlip
A 10889300
3-600-591-00
washer
A 10590100
3-600-551-00
spring, torsion
B 10803600
selector lever
B 10696200
3-600-531-00
actuating slide
A 10212800
3-600-450-00
circlip
A 10741900
3-600-552-00
9/64" diameter steel ball
Ⓑ
B 10559200
3-600-526-00
shut-off lever
A 10152600
3-600-534-00
circlip
A 10262300
3-600-525-00
spring, tension
A 10329000
3-600-562-00
washer
A 10225100
3-600-527-00
retainer
A 10807700
3-600-561-00
spring, compression
A 10816800
operating plate ass'y
A 10078500
3-600-546-00
circlip
A 10698000
3-600-543-00
spring, torsion
A 10210900
3-600-468-00
circlip
A 10696800
3-600-545-00
spring, torsion
Ⓐ
A 10807800
3-600-559-00
spring, torsion
A 10582700
3-600-544-00
spring, tension
A 10210900
3-600-468-00
circlip
B 10559700
feed lever link

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